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Second Edition

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Welcome to DELTAGRAPH

DELTAGRAPH® PROFESSIONAL is an advanced charting and graphics package for your Apple® Macintosh® computer. DELTAGRAPH PROFESSIONAL is designed to make it easy for you to translate complex data into eye-catching charts and graphs that will be read and remembered.

Whether you need charts to present your yearly budget to the corporate office, o to explain highly technical scientific data, DELTAGRAPH can help you do it faster and more effectively, with the highest quality output available.

DELTAGRAPH PROFESSIONAL features a full complement of 38 charts, including 26 two-dimensional (2-D), 10 three-dimensional (3-D), and two Text charts. You have extensive formatting control over every chart element. And DELTAGRAPH provides a complete set of drawing tools, full color support, powerful data-handling functions, and high-resolution color and PostScript® output.

Two new features especially enhance productivity and creativity: DELTAGRAPH PROFESSIONAL makes it easy to create professional slide shows with the charts you have created: you can incorporate text, graphics, QuickTime™ movies, and a full range of fading and sound features. And the new Custom Library allows you to save favorite charts, graphics, and Text objects in readily accessible libraries so you can use them over and over again.

You can import data from almost any file format, including Excel®; SYLK; WKS; Trapeze®; Cricket Graph™; and tab-, comma-, space-, and custom-delimited text. You can import EPSF (Encapsulated Post Script Files) or PICT graphics and QuickTime movies to enhance your charts and slide shows. And you can export your charts and graphics in EPSF, PICT, Adobe Illustrator™, and Scrapbook formats.

DELTAGRAPH PROFESSIONAL supports all System 7.0 features, including Publishing and Subscribing, Balloon Help, Apple Events, and TrueType.

DELTAGRAPH PROFESSIONAL lets you print to both QuickDraw™ and PostScript devices, giving you a wide choice of printers, plotters, and film recorders on which to produce your final chart documents.

What You Need

To use DeltaGraph Professional, you need an Apple Macintosh Plus (with hard disk), Classic, SE, or II with System software 6.0.2 or higher with at least 2MB internal memory. DeltaGraph requires a hard disk or other large-capacity storage device. If you are using System 7, some of the dialog boxes may be different than those shown here. This manual reflects System 6.0.7.

If you plan to take advantage of DeltaGraph Professional's 3-D charting capabilities, a Macintosh with a 68020 or 68030 processor is recommended. A math co-processor (Motorola® 68881 and 68882 processor) will also enhance DeltaGraph's performance. To find out if your computer has either of these, refer to your Apple Macintosh User's Guide.

Generally, the Macintosh II has a 68020 processor; the SE30, IIsi, IIci, IIcx, and IIfx have a 68030 processor; and the Plus, Classic, and SE do not have either of these processors. The Macintosh SE30, II, IIci, IIcx, and IIfx have a built-in math co-processor, which is an optional feature for the IIsi. Refer to the specifications for your Macintosh.

You should be familiar with basic Macintosh operations, such as working with documents, windows, menus, dialogs, and the mouse. If you are not familiar with these operations, please refer to your Apple Macintosh user's guide.

How to Use this Manual

The *DeltaGraph Professional User's Guide* is designed to help you take full advantage of DeltaGraph's power and versatility.

Everyone, including power users, will benefit from reading Chapter 2, "Understanding DeltaGraph Concepts." This chapter defines key terms and gives you an overview of the DeltaGraph environment.

Chapter 6, "Plotting Data," examines each DeltaGraph chart type and explains what type of data is needed and how to set it up.

We encourage you to experiment with the many options and features available in DeltaGraph Professional. To help you to do this, we've included a "Show" button in most of the chart-related dialog boxes so you can see how different options will affect your chart before you exit the dialog and save the selection.

Most of the DeltaGraph dialogs are explained option by option in this manual. To find information on a specific dialog, you can look up the command name in the index, or you can go directly to Chapter 16, "DeltaGraph Menus and Commands." This chapter gives a brief explanation of every command and a reference to the more detailed discussions in other chapters.

Chapter 2, Chapter 16, and Appendix B use the following icons to help you identify which DeltaGraph window(s) a command or feature applies to.

Data Page
Text Page
Chart Window
Slide Sorter Window

Chapter Summaries

Chapter 1, "Getting Started," explains how to install DeltaGraph Professiona

Chapter 2, "Understanding DeltaGraph Concepts," is an important introducti to the DeltaGraph environment. It offers an overview of the different types o windows, tools, and chart elements; defines terms; and describes the differenc between a Data page and a Text page and how each is used. This chapter give power users the basics they need to get right to work.

Chapter 3, "Learning DeltaGraph," is a tutorial that walks you through the process of creating and importing data, plotting three different types of charts, adding custom templates to the Custom Library, and creating a background.

Chapter 4, "Organizing Data in a Data Page," explains how to use the Data pa within the Notebook window; this includes entering, selecting, editing, formatting, importing, exporting, manipulating, and printing data. It also tells you how to apply mathematical formulas to the data and how to subscribe to data within other applications.

Chapter 5, "Organizing Data in a Text Page," explains how to use the Text pa within the Notebook window; this includes entering, editing, formatting, manipulating, and printing data.

Chapter 6, "Plotting Data," focuses on creating charts and working with Char windows. It gives a pictorial example of each DeltaGraph chart and the type data needed to create it, in addition to explaining how to set default preferenc change chart types, create overlay charts, update charts, revise data, and use t Internal Command Language to automate chart creation from another application or text string.

Chapter 7, "Customizing Your DeltaGraph Charts," explores ways to enhan your charts by modifying the elements within them. You can reformat axes a add axis titles, reposition labels, change chart symbols, add depth to 2-D cha and perspective to 3-D charts, and much more.

Chapter 8, "Using the "Options..." Command," focuses on more possibilities for customizing your DeltaGraph charts by taking a detailed look at the "Options" dialog for each chart.

Chapter 9, "Adding Error Bars and Curve Fits to a Chart," explains how to use error bars and curve fits and how to create your own user-defined curve fit.

Chapter 10, "Creating, Editing, and Manipulating Objects in a Chart Window," teaches you how to use the pattern, color, and line palettes, as well as each tool in the Toolbox. It also explains the Draw menu commands and how to create custom colors and special blends.

Chapter 11, "Importing and Exporting Graphics," describes how to use the "Import" and "Export" commands, and which graphic file formats are available with each. It also covers publishing and subscribing to graphics from DeltaGraph.

Chapter 12, "Creating a Custom Library and Backgrounds," explains how to use the Custom Library to turn any object created in a Chart window into a standard template you can use again and again and how to create backgrounds that can be applied to one or more Chart windows.

Chapter 13, "Creating a Slide Show," shows you how easy it is to convert your Chart windows to slides, then apply sophisticated special effects to create a professional slide show. Printed handouts complete the presentation.

Chapter 14, "Spell-Checking in DeltaGraph," describes how to spell-check an entire DeltaGraph file or selected windows only.

Chapter 15, "Printing Your Charts," explains how to print your documents on standard and non-standard printers.

Chapter 16, "DeltaGraph Menus and Commands," describes each DeltaGraph menu and command in the order in which it appears in the menu bar. It also references you to the appropriate chapter for a more detailed discussion.

Appendix A, "DeltaGraph Chart Types," provides a quick reference to the types of charts available in DeltaGraph. It shows a small visual of what each chart looks like.

Appendix B, "DeltaGraph Quick Commands," lists all the Command-key (⌘) combinations and other shortcuts that can be used within each section of DeltaGraph.

Appendix C, "Creating a Histogram," takes you through the steps of plotting a histogram from data derived using the "Formula Builder" dialog.

1 Getting Started

This chapter tells you how to install DeltaGraph Professional.

Before you install DeltaGraph Professional, make copies of your DeltaGra disks and store the originals in a safe place, so that you can make another backup if the first becomes damaged. It is also a good idea to lock your distribution disks before copying them.

If you do not know how to lock and copy disks, see your Apple Macintosh user's guide for instructions.

Remember that DeltaGraph Professional is copyrighted and that your copy ha a unique serial number. It is illegal for you to copy DeltaGraph Professional except for your own use.

Installing DeltaGraph Professional

DeltaGraph Professional must be installed onto your hard disk using a specia installation program. The application and files on the installation disks are compressed and cannot be used by copying them directly onto your hard disk.

The Installer provides two options — "Easy Install" and "Customize." "Easy Install" installs the DeltaGraph Professional application and all other files, including the DeltaSymbol fonts, Sample Files, Tutorial Files, Custom Chart Template Libraries, Clip Art Libraries, the Spell Checking Dictionary, and Hel System.

"Easy Install" requires approximately 6.5 megabytes of hard disk space. "Easy Install" is highly recommended because it ensures that you can take full advantage of all DeltaGraph Professional's options.

"Customize" lets you choose which groups of files you want to install. If you have limited hard disk space available, or do not plan to use certain options within DeltaGraph Professional, you may want to customize your installatio "Customize" requires varying amounts of hard disk space, depending on the options you choose.

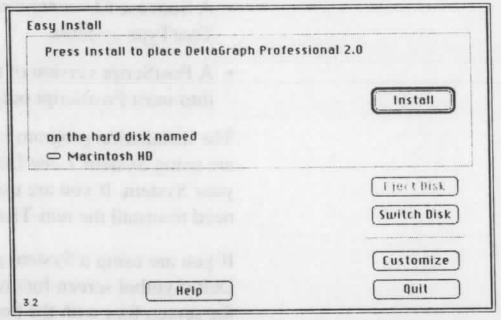
Note: Disable all virus detection applications until after DELTAGRAPH PROFESSIONAL is installed.

To Install DELTAGRAPH PROFESSIONAL using "Easy Install:"

1. **Insert the DELTAGRAPH PROFESSIONAL Disk 1 into your floppy disk drive.**
2. **Double-click on "Installer."**

   Installer

   The "Easy Install" dialog appears as shown below.



Easy Install

Press Install to place DeltaGraph Professional 2.0

on the hard disk named

⊂⊃ Macintosh HD

3. **Make sure that the disk indicated in the dialog is the one on which you want to install DELTAGRAPH PROFESSIONAL.**

   If the wrong disk name appears, click "Switch Disk" until you see the correct disk name.
4. **Click "Install."**

   The Installer begins to install the complete DELTAGRAPH PROFESSIONAL package on the selected disk.
5. **Follow the instructions on the screen.**

   The Installer automatically ejects Disk 1 and displays a message on the screen asking you to insert a different disk. Insert the disk specified and repeat this process until installation is complete.
6. **When you see a message reporting that the installation was successful, click "Quit."**

   The Installer window closes.

If the installation was not successful, a message appears indicating that installation failed. Check to make sure your hard disk has enough storage spac and begin the installation again. If you do not have at least 6.5M of space on your hard disk, you should clear enough space on your disk or use the "Customize" installation option to install only some of the DELTAGRAPH PROFESSIONAL options.

If you have verified that your hard disk has enough free space and the progra fails to install after a second attempt, contact DeltaPoint Technical Support at (408) 375-4700.

To Install DELTAGRAPH PROFESSIONAL using the "Customize" option:

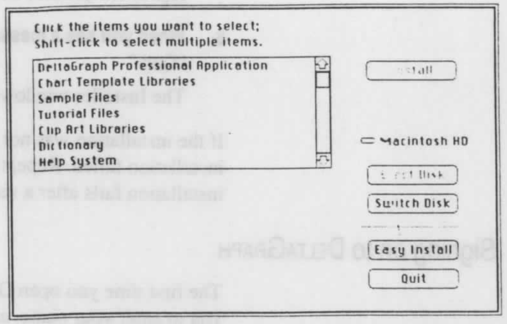
1. **Insert the DELTAGRAPH PROFESSIONAL Disk 1 into your floppy disk drive.**
2. **Double-click on "Installer."**

   Installer

   The "Easy Install" dialog appears as shown on the previous page.
3. **Make sure that the disk indicated on the screen is the one on which you wa to install DELTAGRAPH PROFESSIONAL.**

   If the wrong disk name appears, click "Switch Disk" until you see the correct disk name.
4. **Click "Customize."**

   The Custom Installation window appears as shown below. All the files available for installation are listed in the window.



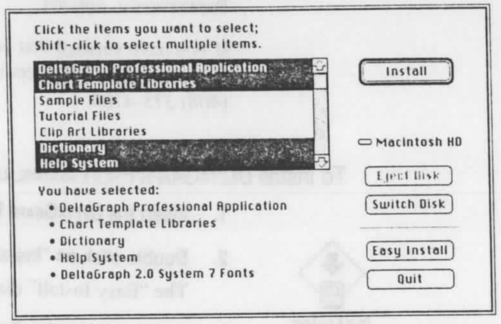
Click the items you want to select;
Shift-click to select multiple items.

DeltaGraph Professional Application
Chart Template Libraries
Sample Files
Tutorial Files
Clip Art Libraries
Dictionary
Help System

⊂⊃ Macintosh HD

5. **Scroll through the list and select all the items you want to install using the Shift–click key combination.**

   As you select items, their names appear in the lower portion of the dialog.



Click the items you want to select;
Shift-click to select multiple items.

You have selected:
- DeltaGraph Professional Application
- Chart Template Libraries
- Dictionary
- Help System
- DeltaGraph 2.0 System 7 Fonts

6. **Click "Install" to install the selected items.**

   The Installer begins to install the files and options you have selected onto your hard disk.

7. **Follow the instructions on the screen.**

   The Installer automatically ejects Disk 1 and displays a message on the screen asking you to insert a different disk. Insert the disk specified and repeat this process until installation is complete.

8. **When you see a message reporting that the installation was successful, click "Quit."**

   The Installer window closes.

If the installation was not successful, a message appears indicating that installation failed. Repeat installation procedures a second time. If the installation fails after a second attempt, contact DeltaPoint Technical Support.

Signing on to DELTAGRAPH

The first time you open DELTAGRAPH PROFESSIONAL, a dialog box appears asking you to enter your name, company name, and for new users; your program serial number. The serial number is printed on Disk 1 of the DELTAGRAPH PROFESSIONAL installation disks. If you are upgrading from an older version of DELTAGRAPH, you will only be asked for your name and your company name.

About the DeltaSymbol Font

DELTAGRAPH PROFESSIONAL includes a proprietary font called DeltaSymbol that contains special characters designed for charts that require symbols. Three separate files are included as part of this font:

- A Suitcase file containing the TrueType version of the DeltaSymbol screen font.
- A Suitcase file containing the DeltaSymbol screen font for use with non-TrueType systems.
- A PostScript version of the font, called "DeltaSym," that can be downloaded into most PostScript output devices.

The installation program installs the three files into your System folder. If you are using System 7, the DeltaSymbol TrueType font is automatically installed in your System. If you are using Adobe Type Manager (ATM) with System 7, you need to install the non-TrueType fonts to avoid a conflict with ATM.

If you are using a System previous to System 7, you must install the DeltaSymbol screen font manually. You can use the following steps to install the screen font with the Font/DA Mover, version 3.8 or higher.

Alternatively, you can install the screen font into a font utility program, such as Suitcase II™ or MasterJuggler™, that loads fonts which do not reside in your System file. Refer to the manuals for these applications for instructions.

Installing DeltaSymbol

To install the DeltaSymbol screen font:

1. **Open your System folder and double-click on the DeltaSymbol suitcase file.**

   This launches the Font/DA Mover and shows the available DeltaSymbol font sizes on the left side of the dialog.

2. **Click "Open" from within the Font/DA Mover dialog, locate your System file in the System folder, then open it.**

   The fonts already residing in your System appear on the right side.

3. **Select all the DeltaSymbol font sizes and copy them to your System file.**

4. **Click "Quit" to close the Font/DA Mover.**

Note: If you open the DeltaSymbol suitcase and see no fonts, you are using a version of Font/DA Mover that precedes version 3.8.

About "DG Stationery"

"DG Stationery" is a template file you can create from any DELTAGRAPH file. You can set font attributes, window size, number of pages in the Notebook window, and number of Chart windows. You can also include sample data and charts in your "DG Stationery" file.

To use DG Stationery, it must be in the same folder as the DELTAGRAPH application. Then, whether you start a new document by opening DELTAGRAPH from the Finder, or by choosing the "New" command from the file menu, an untitled copy of "DG Stationery" opens automatically.

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2 Understanding DELTAGRAPH Concepts

This chapter provides an overview of the DELTAGRAPH program that will give advanced as well as novice users the foundation needed to take full advantage DELTAGRAPH's power and versatility. It introduces important terms and icons, DELTAGRAPH's three types of windows, the basics of plotting a chart, the elements of a DELTAGRAPH chart, and the online Help system, in addition to tw important new productivity-enhancing features — the professional Slide Show and the Custom Library, which lets you store charts and other objects as templates that you can use again and again.

This chapter covers:

- Determining what data is and where to plot it
- Understanding DELTAGRAPH's three window environments
- Creating a chart
- Understanding the basic elements of a chart
- Understanding the Custom Library and Slide Show features
- Using the DELTAGRAPH Help system

To learn more about	refer to
The types of charts available	"Understanding the Type of Charts" in Chapter 6
Each command within the menus	Chapter 16, "DELTAGRAPH Menus and Commands"
⌘ key quick references	Appendix B, "DELTAGRAPH Quick Commands"

Understanding What Data Is

DELTAGRAPH uses two types of data to define the limits of a chart:

Numerical data – Shows the comparison of two or more variables, such as changes over time, or differences between two objects. It is used to create two-dimensional (2-D) and three-dimensional (3-D) charts.

Text or hierarchical data – Shows structure or a process. It is used to create Bullet and Organizational charts.

All data is entered into a Notebook window before it can be used to create charts.

DELTAGRAPH Windows

DELTAGRAPH contains three kinds of windows:

Notebook window – Where data is entered; the starting point for creating a chart.

Chart window – Where you view, modify, and enhance your chart once the data is plotted.

Slide Sorter window – Where you select and reorder Chart windows, then apply transition effects, to generate a slide show.

You can use the "Position" command in the Windows menu to tile, stack, or arrange the windows side by side. From the Windows menu you can also add, name, and delete Chart windows and Backgrounds, add more pages to the chart window, increase or decrease the viewing size of the Chart window, review the contents of the Clipboard, display the Chart window Toolbox, or display any of the Chart windows already created.

The Notebook Window

The Notebook window contains two types of pages:

Data pages – Used to enter numerical data and text data for Table charts in a spreadsheet format.

Text pages – Used to enter text data for Bullet or Organizational charts.

You can have any combination of Data and/or Text pages in a Notebook, enabling you to store different sets of data in a single document. The maximum number of pages is limited only by available memory; if you run out of memory but require more pages, you must create a new file.

Although you can have numerous pages in the Notebook window, only one Data or Text page can be displayed at a time. When you open DELTAGRAPH for the first time, a blank Data page appears in the Notebook window as shown in Figure 2-1.

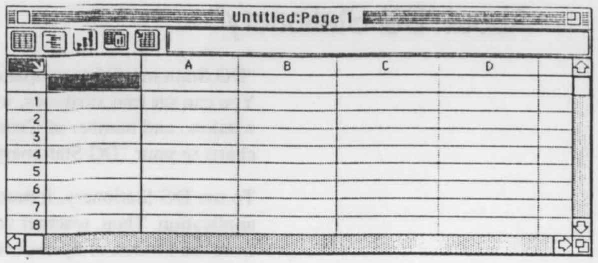


FIGURE 2-1. INITIAL NOTEBOOK WINDOW

Deleting a Data or Text Page

You cannot delete the only page in a file or any page that contains data for which a chart has been plotted.

To delete the current page:

1. **Choose "Delete Page" from the Data menu.**

   A dialog appears asking you to confirm your selection.

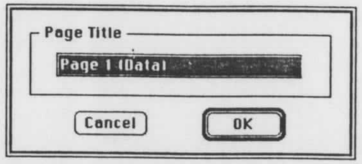
Naming a Data or Text Page

DELTAGRAPH automatically gives each page the default name of "Page 1," "Page 2," "Page 3," and so forth when a page is created. You might want to rename a page to help you identify the data it contains.

To rename a page:

1. **Choose "Name Page..." from the Data menu.**

   The following dialog appears, with the default name selected.


Page Title

Page 1 (Data)

2. **Enter a new name.**

   The new name overwrites the default name.

3. **Click "OK" to rename the page, or click "Cancel" to return to the page without renaming it.**

   If you click "OK," the new title appears after the file name in the Title bar of the Notebook window. (If you have not saved the file, the file name is "Untitled.")

To learn more about	refer to
Saving a file	"Saving Your File" later in this chapter

Notebook Window Elements

Several elements within the Notebook window are the same for Data and Text pages. The first four icons that appear at the top of the Notebook window are common to both pages and are convenient alternatives to equivalent commands in the Data and Chart menus. The Notebook windows also have the standard Macintosh scroll bars, Title bar, and window sizing icons.

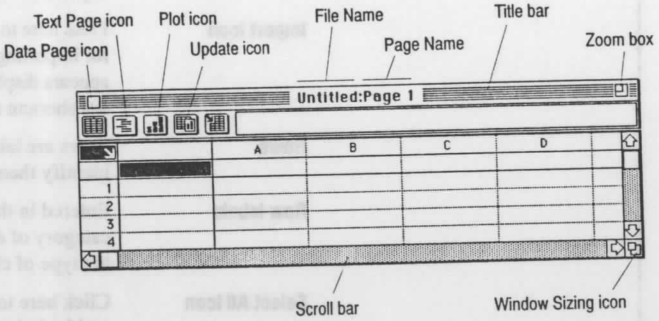


FIGURE 2-2. NOTEBOOK WINDOW ELEMENTS

TABLE 2-1. NOTEBOOK WINDOW ELEMENTS

ELEMENT	DESCRIPTION
Data page icon	Click to display a pop-up menu of Data pages currently associated with the document. Only "Page 1" appears if no other pages have been created.

TABLE 2-1. NOTEBOOK WINDOW ELEMENTS (CONTINUED)

ELEMENT	DESCRIPTION
	To create a new Data page, press the icon and select "New Data Page." To display a different Data page, pr the icon and select the page name you want to see. You can also choose "New Page" from the Data menu create a new page that is the same type as the page currently displayed.
Text page icon	Click to display a pop-up menu of Text pages currently associated with the document. To create a new Text page, press the icon and select " Text Page." To display a different Text page, press the icon and select the page name you want to see. You can also choose "New Page" from the Data menu create a new page that is the same type as the page currently displayed.
Plot icon	Click to display a dialog that allows you to select the t of chart you want when you are ready to plot your data You can also choose "Plot..." from the Chart menu or type ⌘–G to display the same dialog.
Update icon	Click after changing data in a Notebook page to automatically update any charts associated with the pa You can also choose "Update" from the Data menu or type ⌘–= (equal sign).
Title bar	You can move any DELTAGRAPH window by clicking o the Title bar, holding down the mouse button, and dragging the window to a new location. The Title bar displays the file name followed by the pa name.

All files are called "Untitled" until you name and save them. Pages in the Notebook window are named because you can use either the Text or Data Page icons or the "New Page" command in the Data menu to create more than one Data or Text page per file, which is useful when you need to organize different data sets within the same file.

Data Page Elements

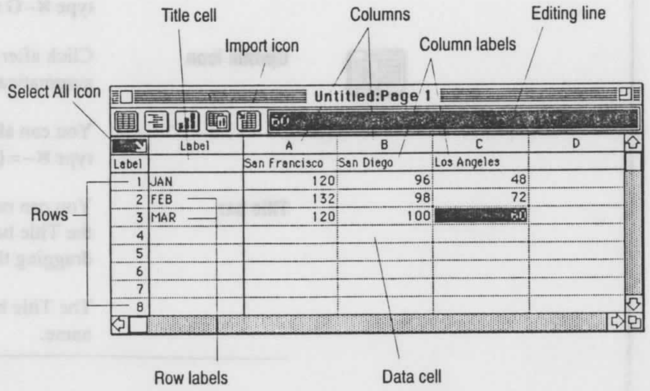
To create a new Data page, press the Data page icon at the top of the window and select "New Data Page," or choose "New Page" from the Data menu.

To display a previously created Data page associated with the same document, press the Data page icon and select the page name you want to display.

The Data page (see Fig. 2-3) is used to set up data for the majority of DeltaGraph charts. Each Data page accommodates up to 10,000 rows and 256 columns. With multiple Data pages, you can store different sets of data in one file.

Use commands in the File, Edit, Text, and Data menus to manipulate and format the data in the Data page.

To learn more about	refer to
Maneuvering in the Data page	"Getting Around in a Data Page" in Chapter 4



	Label	A	B	C	D
Label		San Francisco	San Diego	Los Angeles	
1	JAN	120	96	48	
2	FEB	132	98	72	
3	MAR	120	100	60	
4					
5					
6					
7					
8					

Figure 2-3. The Data Page

Table 2-2. Data Page Elements

Element	Description
Data cell	Contains only one piece of information. You can select any cell by clicking on it with the mouse. The box becomes reversed (black with white lettering), and the selected entry appears on the Editing line.
Editing line	Displays the contents of the selected cell so you can make corrections. If the cell is empty, the Editing line contains the blinking cursor so you can enter data for the highlighted cell.
Columns	Columns are labeled A, B, C, D, and so forth to help you identify them.
Column labels	Entered in the row directly below the column letters to identify a data series. The use of column labels is dependent on the type of chart you are plotting.
Import icon	Press here to display a pop-up menu of file format options for importing data. Choose a format and an "Open" dialog appears displaying all the files available in that format. This is a shortcut to the "Import" command in the File menu.
Rows	Rows are labeled 1, 2, 3, 4, and so forth to help you identify them.
Row labels	Entered in the column next to row numbers to identify a category of data. The use of row labels is dependent on the type of chart you are plotting.
Select All icon	Click here to select all data in the Data page. Make sure no blank data cells are selected.
Title cell	The Title cell is the intersection of the row labels and the column labels. This cell is used to enter the title of your Table chart.

To learn more about	refer to
The Data page	Chapter 4, "Organizing Data in a Data Page"
How the data converts to a chart	"Understanding the Type of Charts" in Chapter 6
Importing data	"Importing Data," "Linking Excel Data," "Subscribing to Data," in Chapter 4 and "Using ICL" in Chapter 6

Text Page Elements

To create a new Text page, press the Text Page icon at the top of the window and select "New Text Page," or choose "New Page" from the Data menu.

To display a previously created Text page associated with the same file, press the Text Page icon and select the page name from the pop-up menu.

⊟ Data in the Text page is organized like an outline by levels of hierarchy (see Fig. 2-4). The Title line acts as the Title of the chart and indicates the beginning of a new data set. All entries left in this flush-left or zero hierarchical position are considered Title lines (unless you decide to change their hierarchy, which you can do at any time). The hierarchy of the first line in a Text page cannot be changed.

If you have only one Title line on a page, there is no need to select data; DELTAGRAPH plots the entire page automatically. If you have more than one data set on a page, you must select the data sets you want plotted.

To select data for a Text chart, click on the Title line icon of the data set. This selects the Title line and all subordinates up to the next Title line; only the selected entries are plotted. If no data sets are selected, the first data set is plotted. You can select adjacent or non-adjacent data sets.

Use the "Outline..." command in the Text menu to add, delete, and assign levels to the Text page. The Text page also uses the following commands from the Data menu: "New Page," "Delete Page," "Name Page...," and "Update."

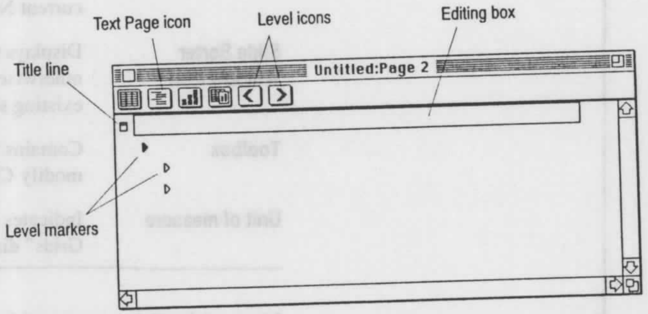


FIGURE 2-4. THE TEXT PAGE

TABLE 2-3. TEXT PAGE ELEMENTS

ELEMENT	DESCRIPTION
Editing box	Surrounds the active text block. Click on any existing entry to select the cell and display the Editing box. You can now edit the entry or change its hierarchical level.
Level icons	Allows you to change the level of the selected entry. Place the cursor anywhere within the Editing box for the entry you want to change and press the < or > Level icons. You can also type ⌘–R to move an entry to the right and ⌘–L to move an entry to the left. The < and > keys can b used to set the level of each entry if the cursor is located at the beginning of the Editing box when the keys are pressed.
Level marker	Marks the level of the entry. Black Level markers indicat that the entry has subordinate levels. White Level marker indicate that the entry has no subordinate levels. You can use the Level markers to reposition entries on th page: drag left or right to change an entry's hierarchy; drag up or down the page to re-order it. All subordinate entries of the selection move also.
⊟ **Title line**	The first entry on a Text page — and any other entry in the flush-left position — is a Title line. A Title line indicates the start of a new data set and serves as the title of any charts plotted from that data.

To learn more about	refer to
The Text page	Chapter 5, "Organizing Data in a Text Page"
Chart types and setting up data	"Understanding the Types of Charts" in Chapter 6

The Chart Window

When you plot data from the Notebook window, the chart you create is displayed in a Chart window. You can have up to 100 Chart windows in a document.

Each time you plot data, you have the option of creating a new Chart window or adding the chart to an existing Chart window.

In addition to the standard Macintosh scroll bars, Title bar, and window-sizing icons, DeltaGraph's Chart windows have three special icons at the top of the vertical Scroll bar: the Revise icon, the Slide Sorter window icon, and the Library icon. These are described in Table 2-4.

Choose "Preferences" from the Edit menu to display a dialog that lets you change program defaults that affect all Chart windows.

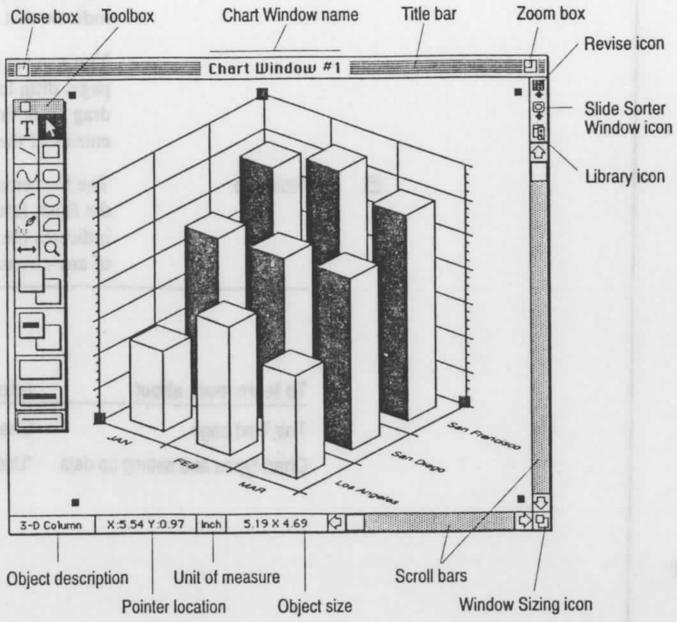


Figure 2-5. The Chart Window

Table 2-4. Chart Window Elements

Element	Description
Chart window name	DeltaGraph gives Chart windows the default names "Chart Window #1," Chart Window #2," and so forth. You can use the "Name…" option within the "Chart Windows" command in the Windows menu to give your Chart windows more meaningful names. The Chart window names associated with the current file appear at the bottom of the Windows menu.
Library icon	Displays a dialog so you can open an existing Custom Library. Pressing Shift while clicking on this icon allows you to create a new Library.
Object description	Displays the name of the selected object.
Object size	Displays the size of the selected object.
Pointer location	Indicates the position of the pointer on the invisible grid in the active window.
Revise icon	If you press this icon when a chart is selected, DeltaGraph opens the associated Notebook window so you can make changes to the data that will affect only the selected chart. If a chart is not selected, DeltaGraph displays the current Notebook window.
Slide Sorter Window icon	Displays the Slide Sorter window, if you have one open; otherwise, it displays a dialog so you can open a new or existing slide show.
Toolbox	Contains tools and palettes used to create, manipulate, and modify Chart window objects.
Unit of measure	Indicates the unit of measure as specified in the "Rulers & Grids" dialog.

Many of the dialogs accessed from the Chart menu have a "Show" button that enables you to preview the results of your selections without exiting the dialog. This allows you to experiment with different features without permanently changing your chart.

To learn more about	refer to
Creating a chart	"Creating a Chart" in Chapter 6
Managing Chart windows	"Working with Chart Windows" in Chapter 6
Chart window defaults	"Setting Chart Default Preferences" in Chapter 6

Chart Window Objects

A Chart window can contain four types of objects, as illustrated below and described in Table 2-5.

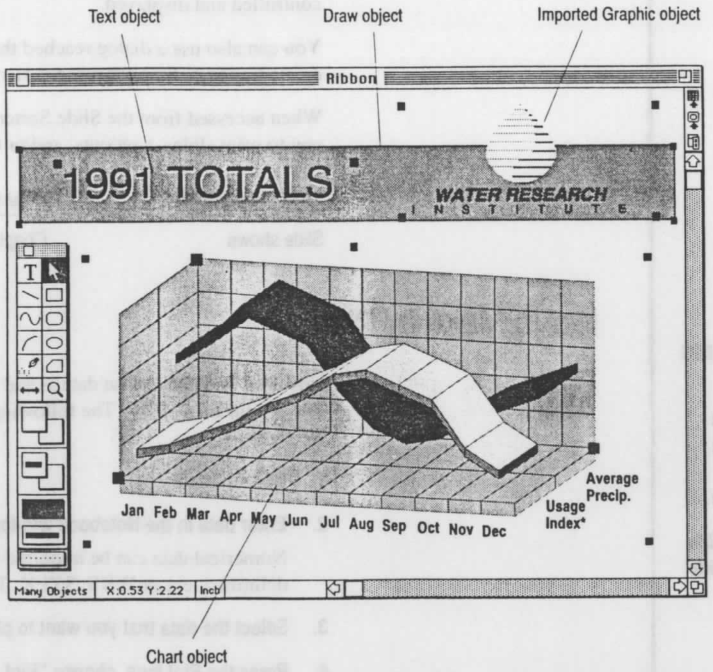


FIGURE 2-6. CHART WINDOW OBJECTS

TABLE 2-5. CHART WINDOW OBJECTS

OBJECT	DESCRIPTION
Chart object	A DeltaGraph chart. A Chart object contains many char elements, including labels and titles. You generally use the tools from the Toolbox and commands in the Text an Chart menus to manipulate or modify the elements in a Chart object, and the Chart object itself. Use the "Preferences" dialog to set text attribute defaults.
Draw object	Any object you add to a Chart window using the Draw tools in the Toolbox. You generally use the Toolbox and commands in the Draw menu to manipulate or modify Draw objects.
Text object	Any text you add to a chart using the Text tool in the Toolbox. You generally use the Draw tools and commands in the Draw menu to manipulate or modify th Text object itself. You can use commands in the Edit menu to edit the text in a Text object and commands in the Text menu to change the text's style attributes. Use the "Preferences" dialog to set text attribute defaults.
Imported Graphic object	Any object imported into the Chart window from anothe program.

You can change the text attributes (font, size, style, and color) of chart labels and other text that is a part of a Chart object from the Chart window, but you can't change the content unless you return to the corresponding Notebook page. To change the text within the axis labels, you must edit the corresponding row and column labels in the Notebook window. To change Value axis labels, you must alter the data or use the "Axis" command in the Chart menu to change the axis scale and increments.

You can, however, use the "Format" command in the Data menu to change the format (percent, currency, and so forth) of Value axis labels in the Chart window.

To learn more about	refer to
Changing the format of the data	"Using the 'Format' Command" in Chapter 4
Changing the axis order	"Reformatting A Chart's Axes" in Chapter 7
Selecting chart elements	"Selecting Parts of a Chart" in Chapter 7

About the Toolbox

The Toolbox (see Fig. 2-7) contains the tools you use to create or modify Text and Draw objects in a Chart window. You can choose "Undo" from the Edit menu to cancel the last action taken with a Draw tool.

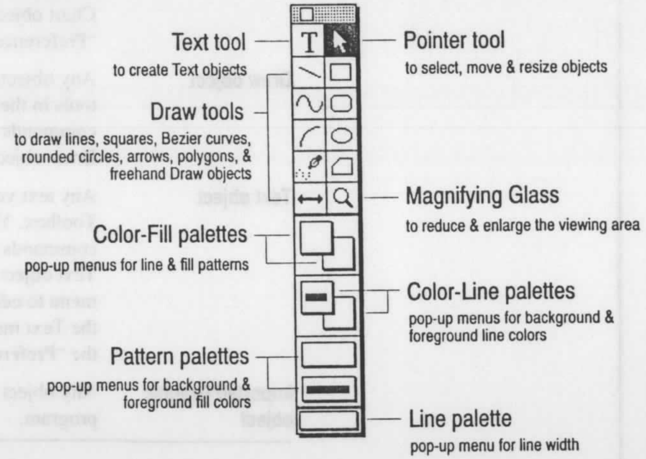

Text tool
to create Text objects
Draw tools
to draw lines, squares, Bezier curves, rounded circles, arrows, polygons, & freehand Draw objects
Color-Fill palettes
pop-up menus for line & fill patterns
Pattern palettes
pop-up menus for background & foreground fill colors
Pointer tool
to select, move & resize objects
Magnifying Glass
to reduce & enlarge the viewing area
Color-Line palettes
pop-up menus for background & foreground line colors
Line palette
pop-up menu for line width
T

FIGURE 2-7. THE TOOLBOX

The Toolbox appears automatically when you open a Chart window. You use the tools in much the same way you use traditional art tools: you have to pick them up before you start to draw. You "pick up," or select, a tool from DELTAGRAPH's Toolbox by clicking on it before drawing in the Chart window.

You can move the Toolbox around the screen by dragging the Title bar. To hide the Toolbox, click in the Close box in the upper left-hand corner or select "Hide Toolbox" from the Windows menu; to re-open the Toolbox, choose "Show Toolbox" from the Windows menu.

To learn more about	refer to
The Toolbox	"Looking at the Toolbox" in Chapter 10

The Slide Sorter Window

The "Slide Show..." command in the Windows menu takes you into a different dimension of DELTAGRAPH. When you're in the slide show mode, the menu bar at the top of the screen changes. It now displays only five menus, including the special Slide menu, which contains all the commands you need to assemble, edit, and run your slide show.

DELTAGRAPH makes it easy to create a professional slide show: you just select the Chart windows you want to use as slides, organize them in the Slide Sorter window, then add visual and audio transition effects. Use the "Slide Show Options..." command in the Slide menu to specify how the slide show is controlled and displayed.

You can also use a dialog reached through the "Page Setup…" command to create handouts for your presentation.

When accessed from the Slide Sorter window, the "Print..." command allows you to print slides, handouts, and/or the slide list.

To learn more about	refer to
Slide shows	Chapter 13, "Creating a Slide Show"

How to Make a Chart

Now that you know what data is and how the windows work, you are ready to create your own charts. The following steps are typically used when working in DELTAGRAPH:

1. **Open DELTAGRAPH.**
2. **Enter data in the Notebook window.**

   Numerical data can be imported from tab-, comma-, space-, and custom-delimited text or WKS, SYLK, Trapeze, Excel, and Cricket Graph formats.
3. **Select the data that you want to plot.**
4. **Press the Plot icon, choose "Plot..." from the Chart menu, or type ⌘-G.**
5. **Select your chart type and destination window from pop-up menus in the dialog box that appears.**

See "Creating a Chart" in Chapter 6 for information on the other options available in this dialog.

6. **Edit your chart in the Chart window, using DELTAGRAPH's full set of colors, patterns, line weights, fonts, text-editing features, symbols, and special options.**
7. **Add text and graphics to your chart using DELTAGRAPH's drawing tools.**
8. **Name and save the chart.**
9. **Print the chart.**

To learn more about	refer to
Selecting data	"Selecting Data" in Chapter 4
Creating a chart	Chapter 6, "Plotting Data"
Making changes to the chart	Chapter 7, "Customizing Your DELTAGRAPH Charts," and Chapter 8, "Using the 'Options...' Command"
Adding Draw objects	"Creating, Editing and Manipulating Objects in the Chart Window" in Chapter 10
Adding Text objects	"Working with Text Objects in a Chart Window," in Chapter 10
Changing the color, fills, etc.	"Using the Draw Menu," in Chapter 10

Revising and Updating Charts

Occasionally you may want to revise the data in a Data or Text page then update one or more of the charts plotted from this data.

To update *all* the charts associated with any changed pages, press the Update icon at the top of the Notebook window or choose "Update" from the Data menu. This command is initiated from the Notebook window.

To update just one particular chart, press the Revise icon above the vertical Scroll bar in the Chart window or choose "Revise Data" from the Data menu. This command is initiated from the Chart window after you have selected your chart.

To learn more about	refer to
Updating all related charts	"Updating Your Charts" in Chapter 6
Revising one chart only	"Revising Chart Data" in Chapter 6

Basic Chart Elements

This section covers the basic chart elements of the various charts in DELTAGRAPH. Depending on the type of chart being plotted, the callouts may vary.

To learn more about	refer to
The names for each chart axis	"Understanding the Types of Charts" in Chapter 6

Numerical Chart Elements

The charts in Figures 2-8 and 2-9 and the descriptions in Table 2-6 explain th basic types of elements found in DELTAGRAPH's numerical charts.

Note: Not all charts in DELTAGRAPH have the same callouts or even look the same. For example, a Ternary chart does not have a Series or Category axis; instead it has three Value axes.

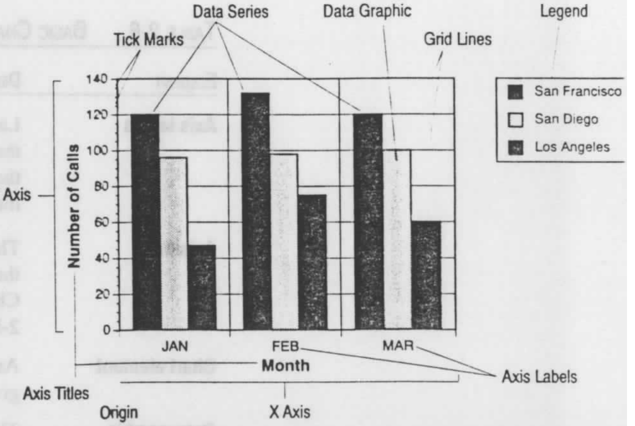


FIGURE 2-8. BASIC ELEMENTS OF A 2-D CH

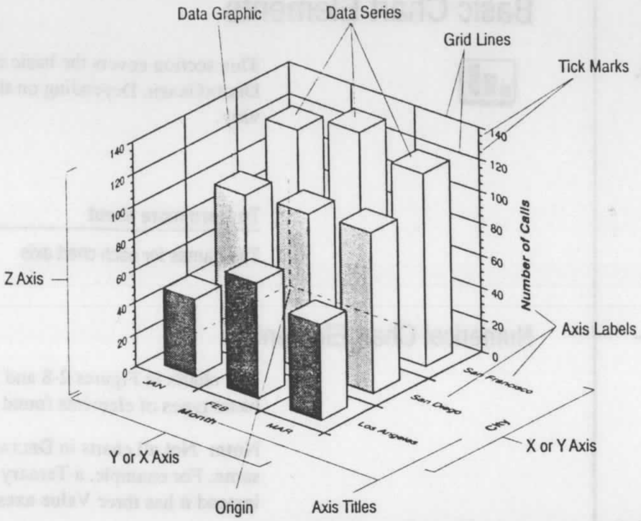


FIGURE 2-9. BASIC ELEMENTS OF A 3-D CHART

TABLE 2-6. BASIC CHART ELEMENTS

ELEMENT	DESCRIPTION
Axis labels	Labels are created in the Data page and are used to name the individual axes. You can change the orientation of these labels with the "Labels" command in the Chart menu.
Axis titles	The names assigned to each axis. Axis titles are added in the Chart window with the "Labels" command from the Chart menu. 3-D charts can have titles on all three axes. 2-D charts can have titles on two axes.
Chart element	Any element such as grids, ticks, labels, axes, and data graphics in a DELTAGRAPH chart.
Data graphic	The lines, bars, or other chart graphics created by a data series — the heart of the chart.
Data series	Set of values that is plotted to create a group of bars, lines, data graphics. In DELTAGRAPH, the default data series is a column of data. You can use the "Series" command in the Data menu to reverse this default and plot a row of data as a data series.
Grid lines	Lines extending from one axis to another to mark the units of measurement and make the graph easier to read. You can change the appearance of the grid lines for each axis using the "Ticks and Grids" command in the Chart menu.
Legend	A text and graphic combination showing the association of the Series axis labels to the data graphic on the chart. You can reverse or display the legend using the "Legend..." command in the Chart menu.
Origin	The point at which two or more axes intersect.
Tick marks	Short marks usually perpendicular to the axes to show the units of measurement. You can change the appearance of tick marks using the "Ticks and Grids" command in the Chart menu.
X axis	In a 3-D chart, the position and purpose of this axis is dependent on the type of chart. In a 2-D chart, this is the horizontal axis and is used as a Value, Category, or Series axis depending on the type of chart.
Y axis	In a 3-D chart, the position and purpose of this axis is dependent on the type of chart. In a 2-D chart, this is the vertical axis and is used as a Value or Category axis depending on the type of chart.
Z axis	In a 3-D chart, this axis is always the vertical axis and can be labeled on both sides of the grid plane. For all 3-D charts this is a Value axis. In 2-D charts this axis is typically the legend.

Text Chart Elements

The charts in Figure 2-10 and the descriptions in Table 2-7 explain the basic types of elements found in DeltaGraph's Text charts.

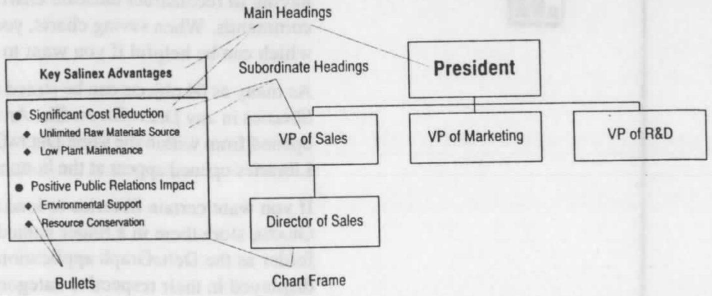


Figure 2-10. Basic Elements of a Text Chart

Table 2-7. Basic Text Chart Elements

Element	Description
Bullets	You can use the "Symbols…" command in the Chart menu to change the bullet symbol (replace with a star or a pointing finger, for example) and its text attributes (size, color, etc.).
Chart frame	The structure or frame of the chart. You can use the "Options..." command in the Chart menu and the palettes in the Toolbox to change the frame's appearance.
Main headings	Text created in the Text page which normally has subordinate headings below it.
Subordinate headings	The subordinates in the chart reflect the sub-levels assigned to data in the Text page. Subordinate headings can also have their own subordinates.

Chart Object Handles

When you select an object in a Chart window, object handles appear around th object to show it is selected.

Figure 2-11 illustrates the three types of object handles you'll see in a numerica chart. In this 3-D chart, the whole Chart object, the Value axis grids, and one data series are selected.

The object handles for Text charts work the same, but Axis resizing handles appear only in numerical charts.

To learn more about	refer to
Selecting chart elements	"Selecting Parts of a Chart" in Chapter 7

Table 2-8. Object Handles

Handle	Description
Object handles	Small squares surrounding a selected Chart, Text, o Draw object. You can drag the object handles to change the size and shape of any object.
Chart element handles	Small circles surrounding a selected chart element. When the chart elements are selected, you can chan their color, pattern, and line styles. If the element is text, you can change the text attributes. You can move axis labels and titles in numerical charts when they are selected, but you cannot move other chart elements separately. All labels and titles from one axis can be moved as a group or individually.
Axis resizing handles	Large squares at the endpoint of each axis on a numerical chart. You can drag an axis resizing handl to lengthen or shorten the axis. This resizes the chart in one direction along the axis but does not affect th perspective (numerical charts only).

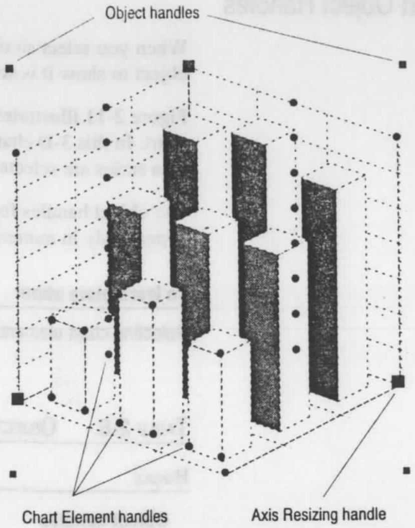
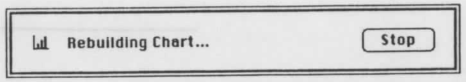


FIGURE 2-11. CHART OBJECT HANDLES

"Rebuilding Chart..." Status Dialog

Anytime you make changes to a chart that takes longer than six seconds to rebuild, the "Rebuilding Chart..." status dialog appears indicating that your changes are being made. While the dialog is displayed you can click "Stop" to suspend the changes. Pressing "Stop" does not cancel the changes, it just delays them until the next change is made.

For example, you can change the size of the labels, press "Stop," add labels, press "Stop," etc. then after the last change is made, allow the status dialog to continue. So instead of being rebuilt after each change, the chart is only rebuilt once. This feature is designed to save you time, especially on those complex charts that have a lengthy rebuild time.



Using the Custom Library

DELTAGRAPH's new Custom Library feature lets you create a template of any Chart, Draw, Text, or Imported Graphic object and then store it in a readily accessible library as a custom format you can use again and again without having to reconstruct intricate chart formatting or hassle with "Cut" and "Paste" commands. When saving charts, you also have the option of saving the data, which can be helpful if you want to transfer the data to a different file.

As many as 64 objects can be stored in each Custom Library. You can use the libraries in any DELTAGRAPH file. An unlimited number of Custom Libraries can be opened from within the same DELTAGRAPH file. The names of the first four Libraries opened appear at the bottom of the "Plot" dialog's pop-up menu.

If you want certain libraries to load automatically when you launch DELTAGRAPH, store them in a folder named "AutoLibrary Folder" within the same folder as the DeltaGraph application. If you want the charts in a library displayed in their respective categories in the "Plot" dialog, assign the library the name "Standard Library."

You can open and create libraries from both Notebook and Chart windows, but you can take advantage of the storage and retrieval features from a Chart window only.

To create a new Custom Library, choose "Library" from the Windows menu; after you enter a name and click "Save" in the dialog that appears, a small Library window (see Fig. 2-12) appears on your screen. Just below the window's Close box is a pop-up menu that lists the contents of the library and commands you can use to delete or rename the library. Click the Close box to close the library.

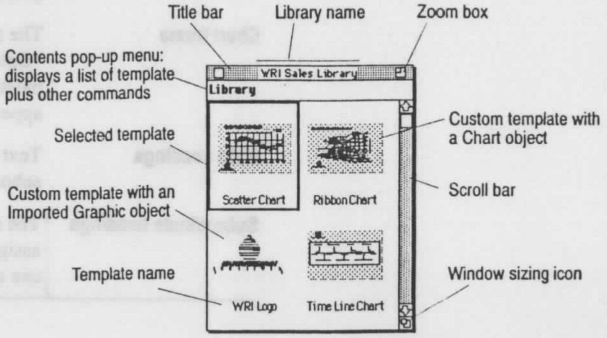


FIGURE 2-12. A CUSTOM LIBRARY

To open an existing library, press the Library icon above the vertical Scroll bar in the Chart window or choose "Library" from the Windows menu and select "Open…" from the hierarchical menu.

To add one or more objects to any new or existing library, select the object(s) then drag the selection into an open library window. If the object is a chart, a dialog appears asking whether you want to save it as a template or with data.

To use a custom template from a library, select the item in the library (by clicking on the Library pop-up and choosing it from the list, or by scrolling in the Library window and clicking on the object's icon) and drag it into an open Chart window. If the template is for a chart, you are prompted to select the data to be plotted. After data is selected, click "Plot." The data is plotted in the selected template with all the formatting of the original chart. If the selected template contains a Text, Draw, or Imported Graphic object instead, a copy of the original object appears in the Chart window when you release the mouse button.

To learn more about	refer to
The Custom Library	"Using the Custom Library" in Chapter 12

Using Backgrounds

You can use the "Backgrounds" command in the Windows menu to create backgrounds that you can apply automatically to as many Chart windows as you like. When you need to make a change to a background, you just change it once and all the Chart windows using the same background change automatically. Since a background is unique to the DELTAGRAPH file in which you create it, you can use the Custom Library to transfer backgrounds into different files.

To learn more about	refer to
How to use backgrounds	"Using Template Background" in Chapter 12

Saving Your File

Saving a DELTAGRAPH file is done as it is in most Macintosh programs. To save a file for the first time: select "Save" from the File menu (or type ⌘–S), enter a file name in the dialog, and click "Save."

Getting Help

As well as supporting System 7 Balloon Help, DELTAGRAPH comes with a context-sensitive, online Help system that gives you immediate access to information about DELTAGRAPH commands, icons, and dialogs.

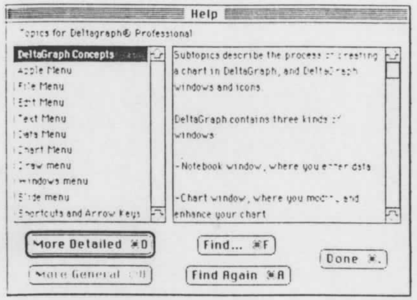
To display the initial "Help" dialog, so you can scan the Help system from the beginning, choose "Help" from the Apple menu, type ⌘–/ (slash), or press the Help key on the extended keyboard.

To invoke a context-sensitive "Help" dialog, hold down the Command key while choosing from a menu or clicking on an icon or in a dialog.

In the initial "Help" dialog, shown on the next page, all the Help topics are lis under "Topics for DELTAGRAPH." A brief description of the selected topic appears in the window on the right.

To obtain more detailed information about any entry in the Topics window: select the entry, then click "More Detailed," type ⌘–D, or double-click on the entry. The menu name and its commands appear in the Topics window. A description of the selected command appears in the window on the right.

To obtain still more detailed information: click "More Detailed" again, type ⌘- D, or double-click on the entry. To return to more general information, click "More General" or type ⌘–V.



Subtopics describe the process of creating a chart in DeltaGraph, and DeltaGraph windows and icons.

DeltaGraph contains three kinds of windows:

-Notebook window, where you enter data

-Chart window, where you modify and enhance your chart

When there is no more detailed or more general information available, that button is dimmed.

Searching for a Term

You can use the "Find..." button to search for a particular term in the Help system.

1. **Click "Find..." or type ⌘–F.**
2. **Enter the term in the "Find" dialog.**

   DELTAGRAPH selects the first occurrence of the term in the Help text, starting from the current menu or command description.

   You can drag the Title bar to move the dialog away from your viewing area.
3. **Click "Find Again" (or type ⌘–A) to find the next occurrence of the term in the Help text.**

   When there are no more occurrences of the term, the system beeps.

When you are finished with Help, click "Done" or type ⌘–. (period) to close the Help system.

3 Learning DELTAGRAPH

This chapter will take you through a tutorial to help you learn basic DELTAGRAPH PROFESSIONAL operations. This four-part tutorial takes you through the basic steps in creating a 3-D Ribbon chart, 2-D Scatter chart, a Bullet chart, and a background.

It is recommended that you read Chapter 2, "Understanding DELTAGRAPH Concepts," before you begin the tutorial; this will help you become more familiar with the terminology used in the manual and the program itself.

Before you install DELTAGRAPH, make copies of your DELTAGRAPH disks and store the originals in a safe place, so that you can make another backup if the first becomes damaged. It is also a good idea to lock your distribution disks before copying them.

If you do not know how to lock and copy disks, see your Apple Macintosh user's guide for instructions.

Remember that DELTAGRAPH is copyrighted and that your copy has a unique serial number. It is illegal for you to copy DELTAGRAPH except for your own use.

Creating a 3-D Ribbon Chart

This tutorial shows you how to:

- Open DELTAGRAPH
- Name and save a file
- Name a Data page
- Enter labels and data
- Plot the data
- Resize a chart axis
- Change the font attributes of chart text
- Assign axis titles
- Create a Text object

- Use the Options...” command
- Change the view of the chart
- Change fill patterns and color on data graphics
- Import Graphic objects
- Name a Chart window
- Create a Custom Library

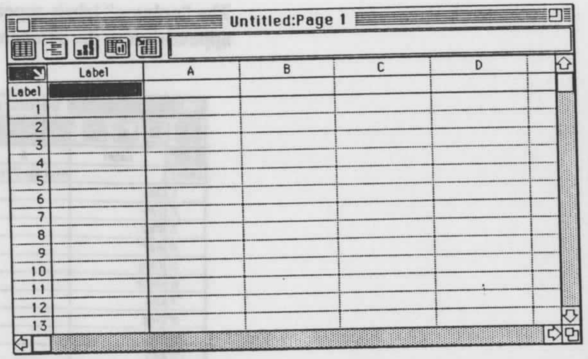
The instructions in the next section assume you have installed DeltaGraph as outlined in Chapter 1. Follow the steps to learn how to make a 3-D Ribbon chart in DeltaGraph.

Use the tutorial to experiment. Do not worry if your chart looks different from the example charts shown in the tutorial. You might see colors or different shades of gray because of variations in Control Panel settings for the number of colors or shades for color and black-and-white monitors.

Opening DeltaGraph

1. **Open DeltaGraph by double-clicking on the application icon or selecting it and choosing “Open” from the File menu.**

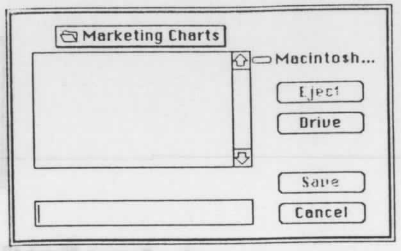
   A Data page within the Notebook window appears on your screen as shown below:



Naming the DeltaGraph File

1. **Select “Save As...” from the File menu.**

   A variation of the following dialog appears:



Some dialogs may appear differently if you are using System 7.

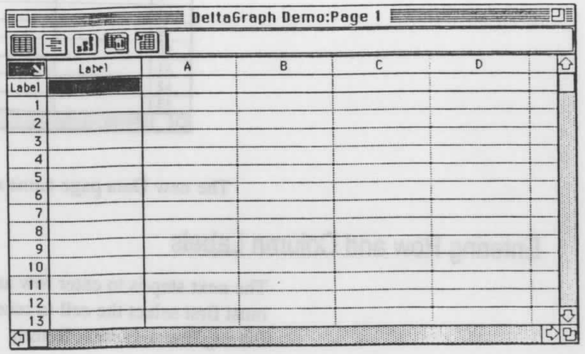
2. **Select where you want the file stored.**

   Refer to your Macintosh owner’s manual for information on maneuvering through your files.

3. **Enter “DeltaGraph Demo” in the long rectangular box.**

4. **Click on “Save.”**

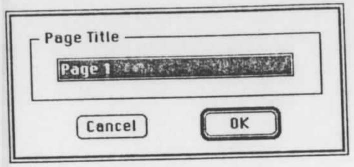
   The Data page reappears with the file title in the Title Bar.



Naming the Data page

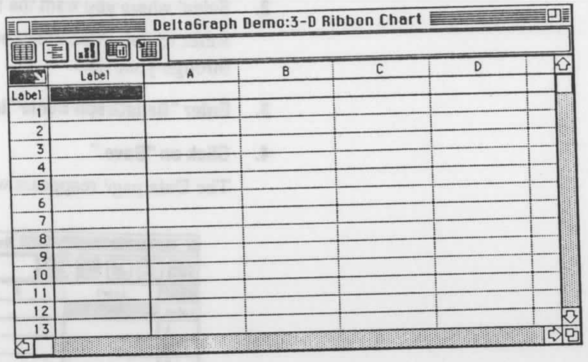
1. **Choose “Name Page...” from the Data menu.**

   The following dialog appears:



2. **Replace "Page 1" with "3-D Ribbon Chart."**

3. **Click "OK."**



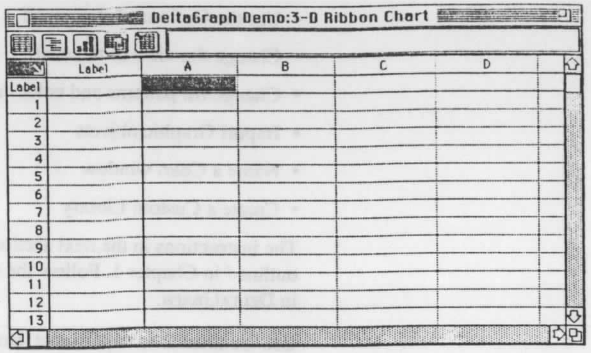
The new Data page name appears next to the File name in the Title bar.

Entering Row and Column Labels

The next step is to enter row and column labels for the data. To do this, you must first select the cell to receive the first label, then type the label on the Editing line and press Return.

1. **Use the mouse pointer to click in the data cell below column A.**

   The data cell is now highlighted to show it is selected.

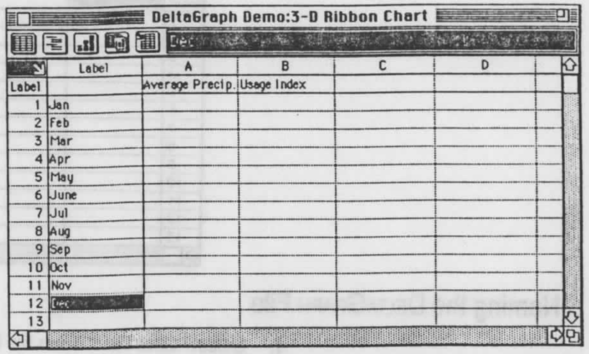


The next step is to enter the labels of the data series you are going to plot. When entering data, use the method that is easiest for you to register your entry:

- click on the cell in which you want to enter the next label or value
- use the Tab or arrow keys to highlight the cell in the direction you want
- press Return to highlight the cell directly below its current position

2. **Enter the column and row labels into the Data page as shown below:**

   The "column" labels appear under the lettered columns. The "row" labels appear next to the numbered rows.



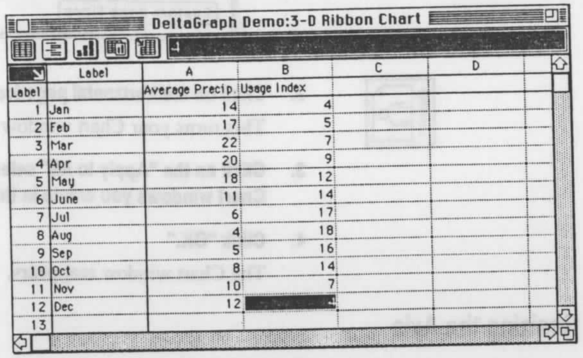
	Label	A	B	C	D
Label		Average Precip.	Usage Index		
1	Jan				
2	Feb				
3	Mar				
4	Apr				
5	May				
6	June				
7	Jul				
8	Aug				
9	Sep				
10	Oct				
11	Nov				
12	Dec				
13					

If you make a mistake, use the Delete key to erase incorrect characters, then retype them. Or, you can place the mouse pointer on the Editing line and click to insert characters.

Note that your entry is not recorded in the selected cell until you press Return, Enter, Tab, one of the arrow keys, click outside the Editing line, or on a different data cell. The arrow keys register the entry and move the selection one cell in the direction of the arrow.

Entering the Data

1. **Use one of the methods described above to enter the rest of the data as shown below:**



	Label	A	B	C	D
Label		Average Precip.	Usage Index		
1	Jan	14	4		
2	Feb	17	5		
3	Mar	22	7		
4	Apr	20	9		
5	May	18	12		
6	June	11	14		
7	Jul	6	17		
8	Aug	4	18		
9	Sep	5	16		
10	Oct	8	14		
11	Nov	10	7		
12	Dec	12	4		
13					

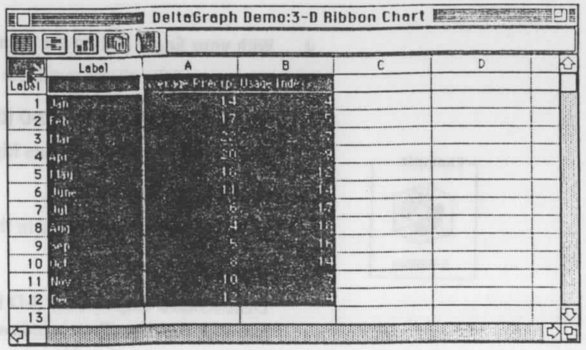
Saving Your File

Save your file periodically by choosing "Save" from the File menu or press ⌘–S.

Plotting the Chart

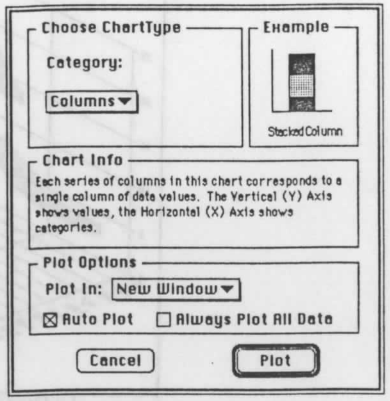
1. **Click on the Select All icon to select all of the data on the current page in the Notebook window.**

   DeltaGraph selects all three data series and their associated row and column labels, as shown in the following picture:



2. **Click on the Plot icon at the top of the Notebook window.**

   The "Plot" dialog appears.



Category: Columns

Each series of columns in this chart corresponds to a single column of data values. The Vertical (Y) Axis shows values, the Horizontal (X) Axis shows categories.

Plot In: New Window

☒ Auto Plot ☐ Always Plot All Data

The dialog has pop-up menus that display examples of all of the chart types you can make with DeltaGraph. It also lets you choose an existing Chart window in which to plot data, in case you do not want to use a new window, which is the default.

3. **Click on the rectangle below "Category:" to display the chart category pop-up menu.**

4. **With your finger still on the mouse button, drag the arrow down to "3-D."**

   Samples of the charts available under that category are displayed.

5. **Drag the arrow across to "3-D Ribbon."**

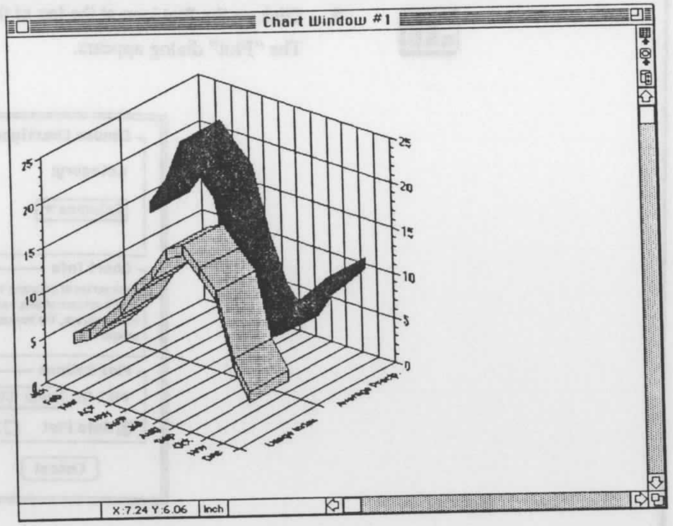
   A dark black square appears highlighting your selection.

6. **Release the mouse button.**

   The selected chart appears in the "Example" box in the dialog.

7. **Click "Plot."**

   DeltaGraph displays the 3-D Ribbon chart in Chart Window #1, the default name of the first Chart window you make.



Note: If you are working on a small screen, you might need to scroll down to see the bottom of the chart.

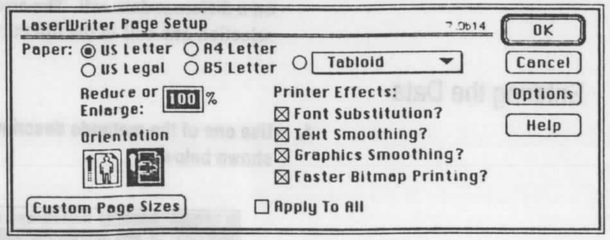
In the next part of this tutorial, you will learn to apply a few of the frequently used features of DeltaGraph. Use this section to experiment and get the feel of working with DeltaGraph, and do not worry if your chart looks different from the charts shown.

If you make a change that you don't like, you can use the "Undo" command in the Edit menu to undo the most recent change.

Page Set Up

1. **Select "Page Setup..." from the File menu.**

   The "Page Setup" dialog appears. This dialog may be different depending on the type of the printer you have.



LaserWriter Page Setup 7.0b14

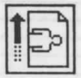
Paper: ● US Letter ○ A4 Letter ○ US Legal ○ B5 Letter ○ Tabloid

Reduce or Enlarge: 100 %

Orientation

Printer Effects:
☒ Font Substitution?
☒ Text Smoothing?
☒ Graphics Smoothing?
☒ Faster Bitmap Printing?

☐ Apply To All



2. **Click on the horizontal page icon under "Orientation" as shown to the left.**

   This turns your Chart window page so that it is displayed lengthwise.

3. **Click on the "Apply to All" selection box to apply the orientation to all the Chart windows you create in this file.**

4. **Click "OK."**

   The Chart window reappears.

Resizing the Axis

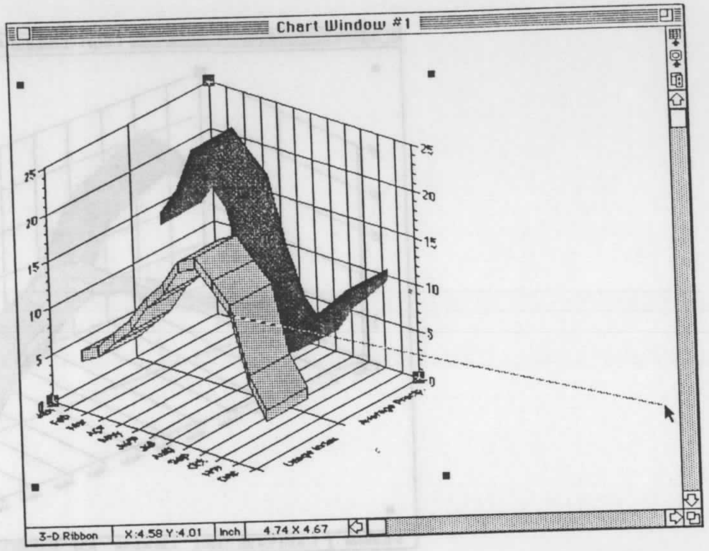
Because the chart looks cramped you may want to expand the right axis to stretch the chart.

To make changes to a chart, you must first select the chart.

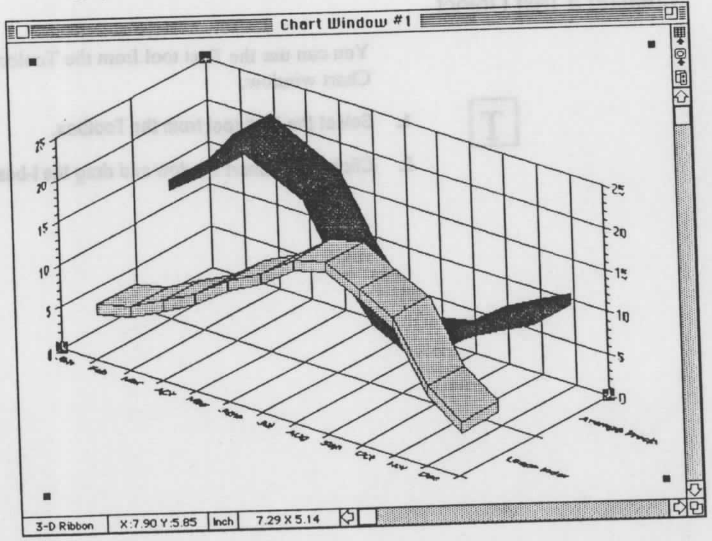
1. **Select the chart by placing the mouse pointer anywhere on the chart and clicking once.**

   Object handles (small squares) and axis resizing handles (large squares) appear to show that the chart is selected. These handles are described in detail in Chapter 2, "Understanding DeltaGraph Concepts."

2. **Click on the right axis resizing handle and drag it to the right.**



The chart reappears with the expanded axis allowing more room for the Category labels on the bottom left side.

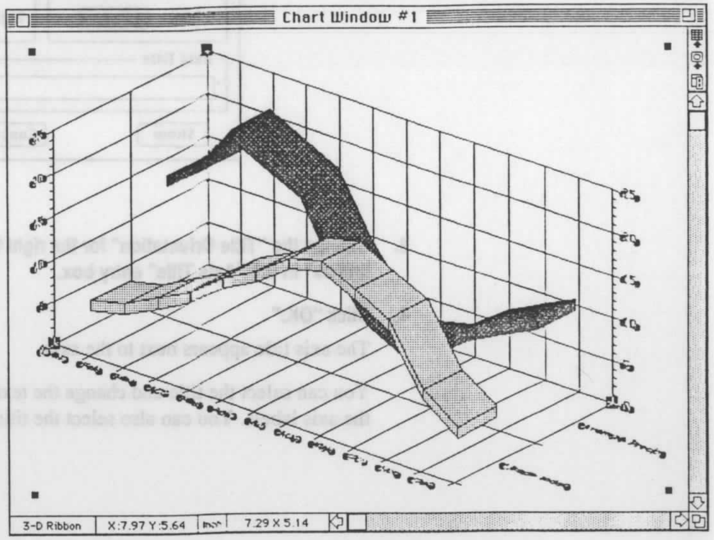


Changing the Text Attributes of Axis Labels

1. **Select the chart.**
2. **Click again on the Category axis labels (lower left)**

   Chart element handles (small circles) appear to show that the Category axis labels are selected.
3. **Hold down the ⌘ key and click on the Series (lower right) and Value axis (vertical) labels.**

   Chart element handles appear on the Series and Category labels.



4. **Select any font, style, size, or colors from the Text menu.**

   The labels reflect your changes.

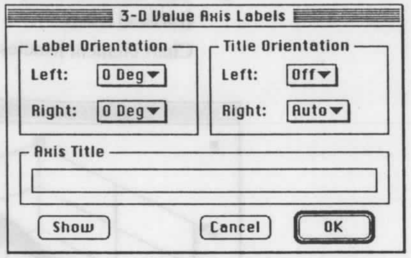
Assigning Axis Titles

You can assign titles to any axis on your chart. We are going to assign a title to the Value axis.

1. **Select the chart.**

2. **Choose "Labels" from the Chart menu and select "Value (Z)" from the hierarchical menu.**

If you check "Double-click on charts" in the "Preferences," dialog (choose "Preferences..." from the Edit menu), you can double-click on the axis labels to bring up this dialog. The following dialog is displayed.



Label Orientation — Left: 0 Deg, Right: 0 Deg

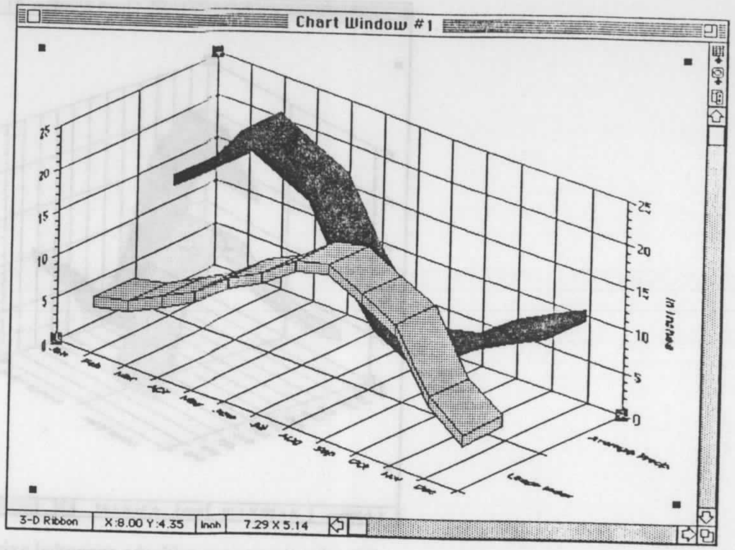
Title Orientation — Left: Off, Right: Auto

3. **Change the "Title Orientation" for the right title to "90 Deg" and enter "In Inches" in the "Axis Title" entry box.**

4. **Click "OK."**

The axis title appears next to the axis.

You can select the title and change the text attributes the same way you did the axis labels. You can also select the title and move it as desired.

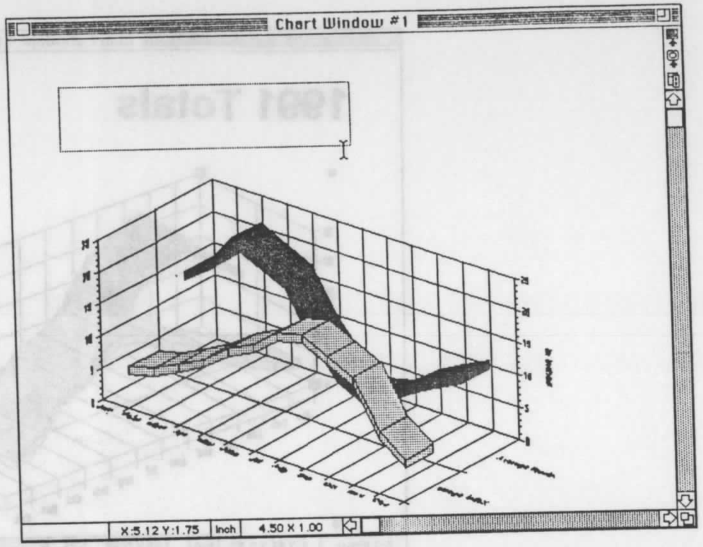


Creating a Text Object

You can use the Text tool from the Toolbox to enter additional text in the Chart window.

T

1. **Select the Text tool from the Toolbox.**
2. **Click in the Chart window and drag the I-beam cursor to create a text object.**



3. **Release the mouse.**

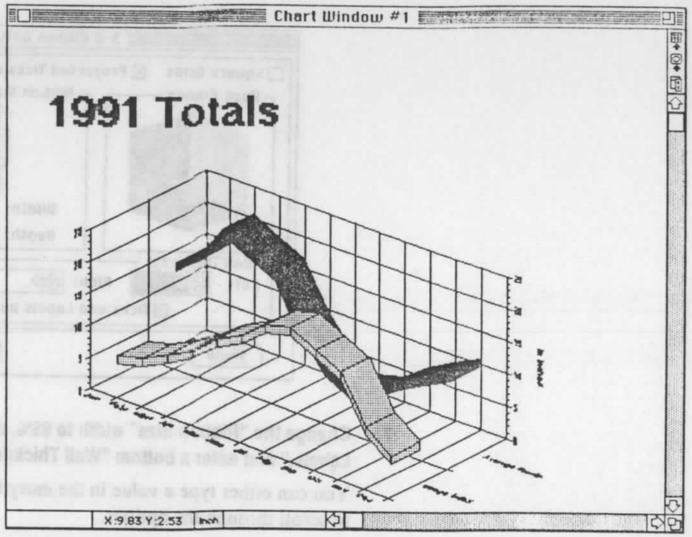
   A text object appears with a Text ruler on top.

4. **Select any text attributes you want from the Text menu, then type in "1991 Totals."**

   You can also set the attributes after you enter the text but you must select the text by clicking and dragging across the words.

5. **Click outside the text block.**

   The Text ruler disappears and the Text remains.



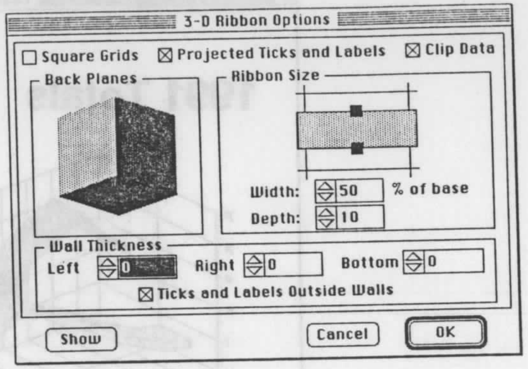
Using the "Options..." Command

Depending on the type of chart, the "Options..." command allows you to change the appearance of the chart in numerous ways.

1. **Select your chart.**

2. **Choose "Options..." from the Chart menu.**

   The "3-D Ribbon Options" dialog appears.



3-D Ribbon Options

☐ Square Grids ☒ Projected Ticks and Labels ☒ Clip Data

Back Planes

Ribbon Size

Width: 50 % of base

Depth: 10

Wall Thickness

Left 0 Right 0 Bottom 0

☒ Ticks and Labels Outside Walls

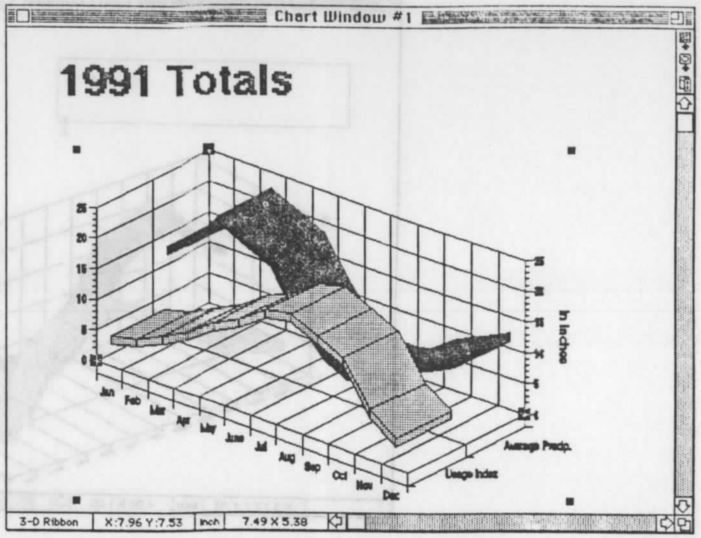
3. **Change the "Ribbon Size" width to 95%, de-select "Projected Ticks and Labels," and enter a bottom "Wall Thickness" of 15.**

   You can either type a value in the entry box or click on the direction arrows to scroll through the options.

   You can use the "Show" button to review your selections without changing your chart.

4. **Click "OK."**

   The chart reappears reflecting your changes.

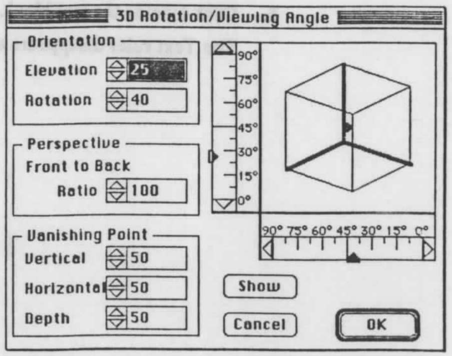


Changing the View of 3-D Charts

1. **Make sure your chart is selected.**

2. **Choose "3-D View..." from the Chart menu.**

   The following dialog appears.



3D Rotation/Viewing Angle

Orientation

Elevation 25

Rotation 40

Perspective

Front to Back Ratio 100

Vanishing Point

Vertical 50

Horizontal 50

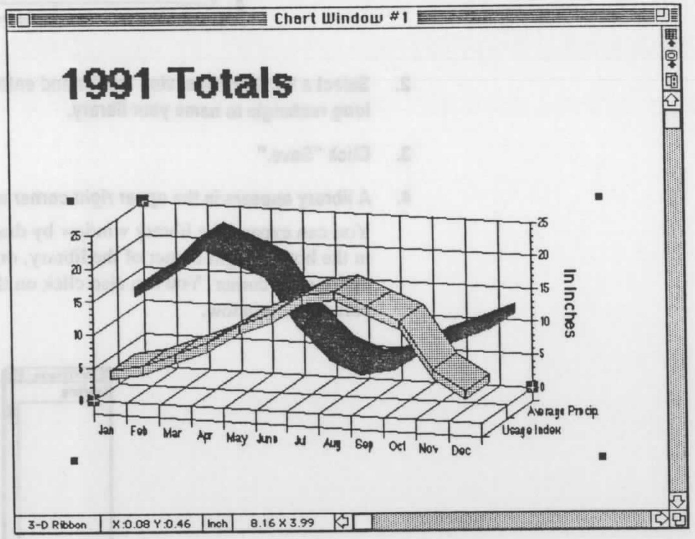
Depth 50

3. **Change the "Elevation" to 12, "Rotation" to 17, and the "Horizontal" vanishing point to 35.**

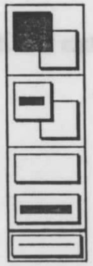
   You can experiment with different views using the "Show" button. You can also change the elevation and rotation by clicking on the slide markers below and next to the sample cube.

4. **Click "OK."**

   The chart reappears reflecting your changes.



Changing Fill Patterns



You use the palettes from the Toolbox to change fill patterns, line patterns, line widths, and colors on your chart. You can also use the "Blends...," "Dashes...," and "Shadows..." commands from the Draw menu to apply special options to fills and lines.

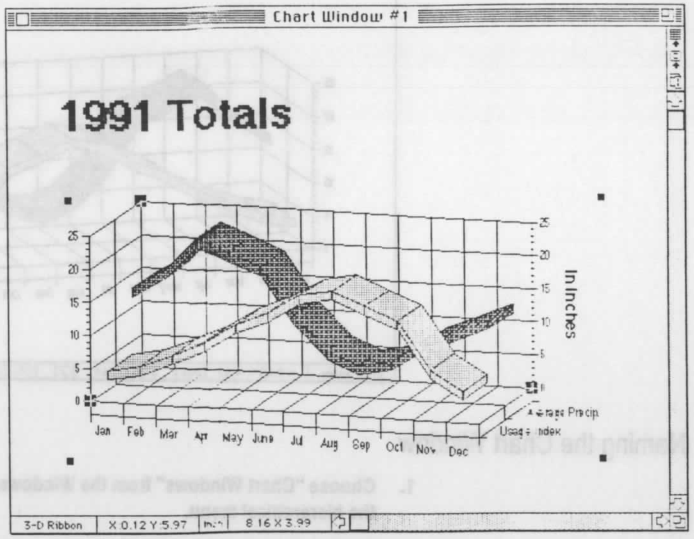
You can select and change an entire chart, a ribbon, an edge of the ribbon, or an individual square within the ribbon — it just depends on what you have selected.

Changes in the Toolbox palettes affect the fill color and fill patterns of selected data graphics, and the line colors and line patterns of the lines surrounding the selected graphics.

1. Select your chart.
2. Click again on any of the chart elements you wish to change.

   Chart element handles (small circles) appear to show that the element is selected. You can click a third time to select individual sections of a ribbon.

   You can change the fills and colors of the tops, bottoms, sides, and ends of each ribbon, the back grid planes, or the chart grids.

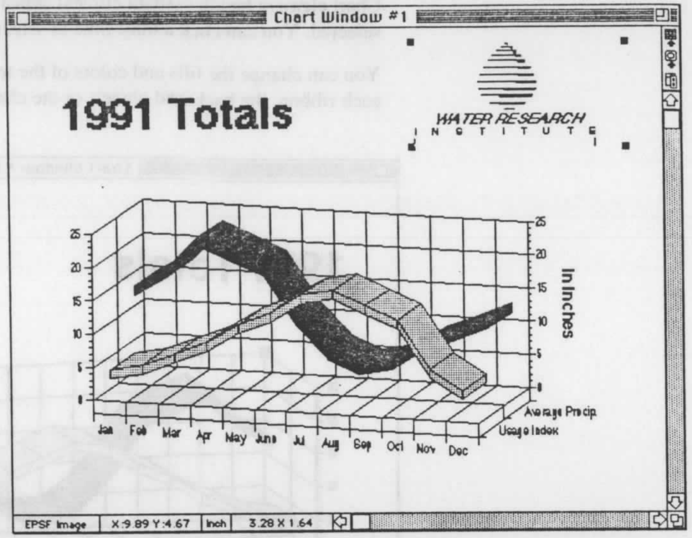


Importing Graphics

1. **Choose "Import" from the File menu and select "EPSF" from the hierarchical menu.**
2. **The standard "Open" dialog appears.**
3. **Double-click on "WRI Logo" from within the "Tutorial Files" folder.**

   The logo appears in the upper left-hand corner of the Chart window. You can resize an Imported Graphic object by pressing Shift (to resize proportionally) while clicking and dragging on an object handle.

You can move the object by clicking and dragging it to a new location.



Naming the Chart Window

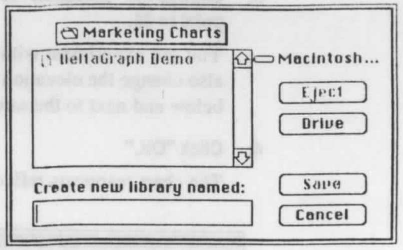
1. **Choose "Chart Windows" from the Windows menu and select "Name..." from the hierarchical menu.**
2. **Enter "1991 Precipitation/Usage" in the dialog.**
3. **Click "OK."**

   The new name appears in the Chart window Title bar.

Creating a Custom Library

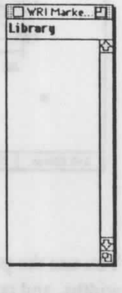
1. **Select "Library" from the Windows menu and select "New..." from the hierarchical menu.**

   A variation of the following dialog appears:

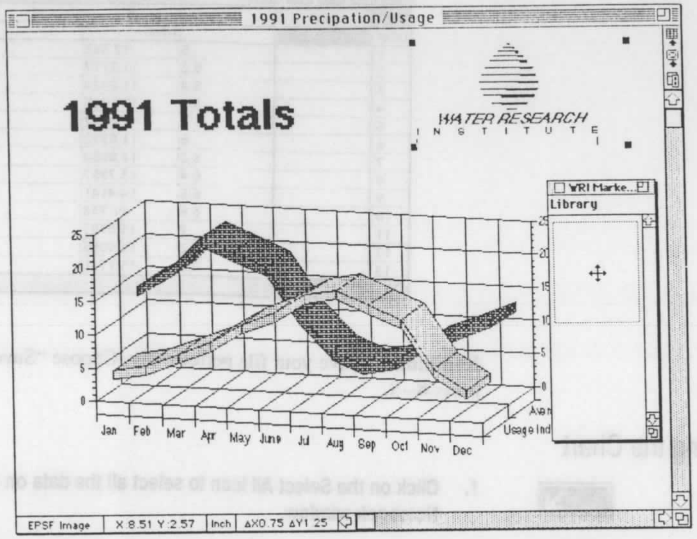


2. **Select a location for saving the file and enter "WRI Marketing Library" in the long rectangle to name your library.**
3. **Click "Save."**
4. **A library appears in the upper right corner or the window.**

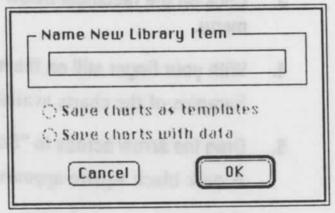
   You can expand the library window by dragging the window resizing icon in the bottom right corner of the library, or clicking on the Zoom box in the upper right corner. You can also click on the Title bar and drag it to another part of the window.



5. **Select the WRI Logo from the Chart window and drag it into the Library.**
6. **A box appears in the library as you drag the logo into it.**

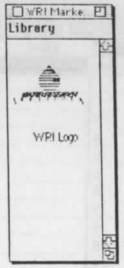


A dialog appears asking you to name the library object.



6. **Enter "WRI Logo" in the long rectangle and click "OK."**

   The logo appears in the library with the given name.



When you place a chart in the Library, DeltaGraph gives you the option of saving it with or without data.

Reminder: Save your file periodically. Choose "Save" from the File menu or press ⌘–S.

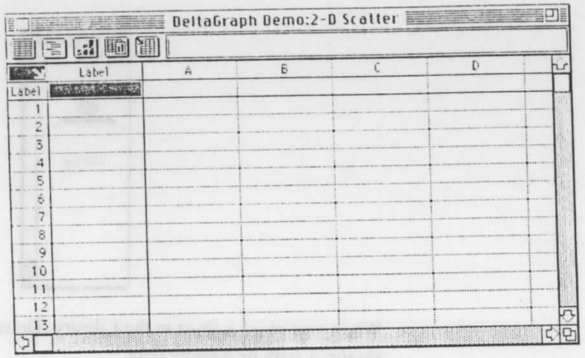
Creating a 2-D Scatter Chart

This tutorial shows you how to:

- Import data
- Change the starting and ending value on an axis
- Use a template from the library
- Change a chart's data symbols

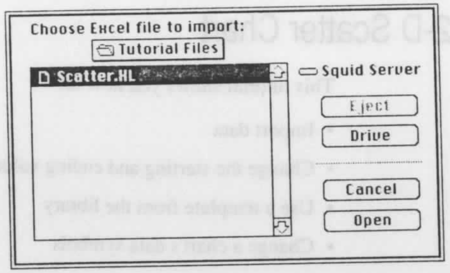
Importing Data

1. **Return to the Notebook window by choosing "Data Notebook" from the Windows menu.**
2. **Press the Data Page icon at the top of the Notebook window and choose "New Data Page" from the pop-up menu.**
3. **Choose "Name Page..." from the Data menu to name the Data page "2-D Scatter."**



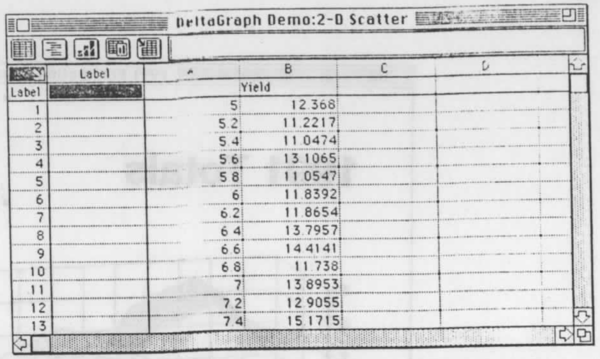
4. **Press on the Import icon and select "Excel" from the pop-up menu.**

   A variation of the following dialog appears:



5. **Double-click on "Scatter.XL" from the "Tutorial Files" folder.**

   Data from the Excel file appears in the Data page.



Label	Label	A	B	C	D
Label			Yield		
1		5	12.368		
2		5.2	11.2217		
3		5.4	11.0474		
4		5.6	13.1065		
5		5.8	11.0547		
6		6	11.8392		
7		6.2	11.8654		
8		6.4	13.7957		
9		6.6	14.4141		
10		6.8	11.738		
11		7	13.8953		
12		7.2	12.9055		
13		7.4	15.1715		

Reminder: Save your file periodically. Choose "Save" from the File menu or press ⌘–S.

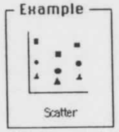
Plotting the Chart

1. **Click on the Select All icon to select all the data on the current page in the Notebook window.**
2. **Click on the Plot icon at the top on the Notebook window.**

   The "Plot" dialog appears.
3. **Click on the rectangle below "Category:" to display the chart category pop-up menu.**
4. **With your finger still on the mouse button, drag the arrow down to "Scatter."**

   Samples of the charts available under that category are displayed.
5. **Drag the arrow across to "Scatter."**

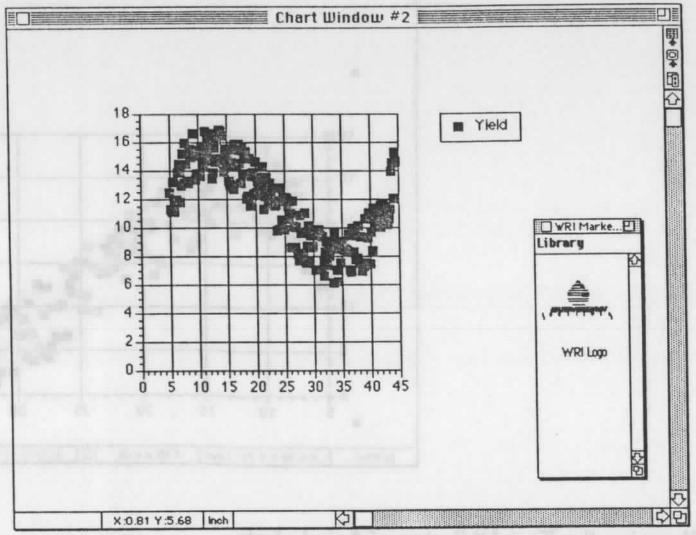
   A dark black square appears highlighting your selection.



6. **Release the mouse button.**

   The selected chart appears in the "Example" box in the dialog.
7. **Click on the "Plot" button.**

   DELTAGRAPH displays the Scatter chart in Chart Window #2, the default name Chart window.



You can move the Custom Library away from the Chart window by dragging the Title bar.

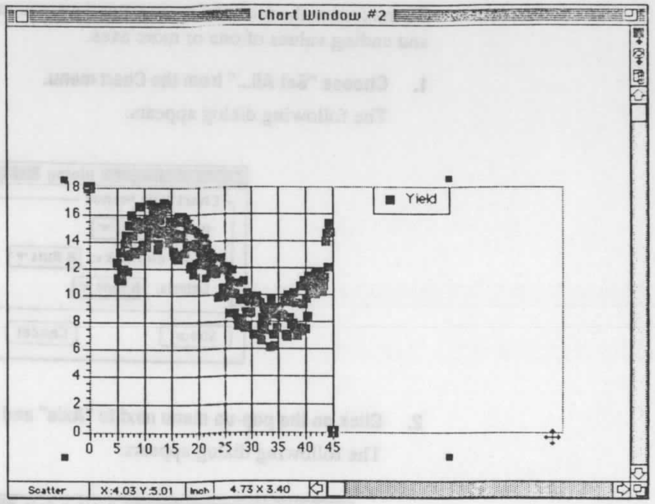
Resizing the Axis

1. **Select the chart.**

   Object handles (small squares) and axis resizing handles (large squares) appear to show that the chart is selected.

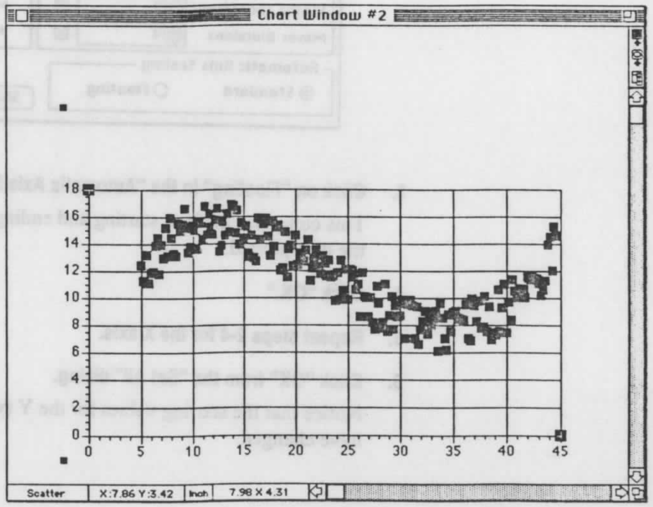
2. **Click on the bottom right axis resizing handle and drag it to the right.**

   A dotted box appears to indicate changes.



3. **Release the mouse.**

   The chart expands to allow more room for the data.

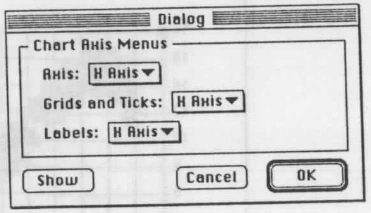


Changing the Starting and Ending Values of an Axis

To maximize the area of data in your chart you may want to modify the starting and ending values of one or more axes.

1. **Choose "Set All..." from the Chart menu.**

   The following dialog appears:



Dialog

Chart Axis Menus

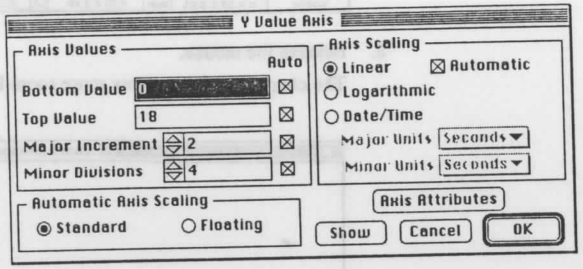
Axis: X Axis

Grids and Ticks: X Axis

Labels: X Axis

2. **Click on the pop-up menu next to "Axis" and select "Y Axis."**

   The following dialog appears:



Y Value Axis

Axis Values

		Auto
Bottom Value	0	☒
Top Value	18	☒
Major Increment	2	☒
Minor Divisions	4	☒

Axis Scaling

● Linear ☒ Automatic

○ Logarithmic

○ Date/Time

Major Units: Seconds

Minor Units: Seconds

Automatic Axis Scaling

● Standard ○ Floating

3. **Click on "Floating" in the "Automatic Axis Scaling" section.**

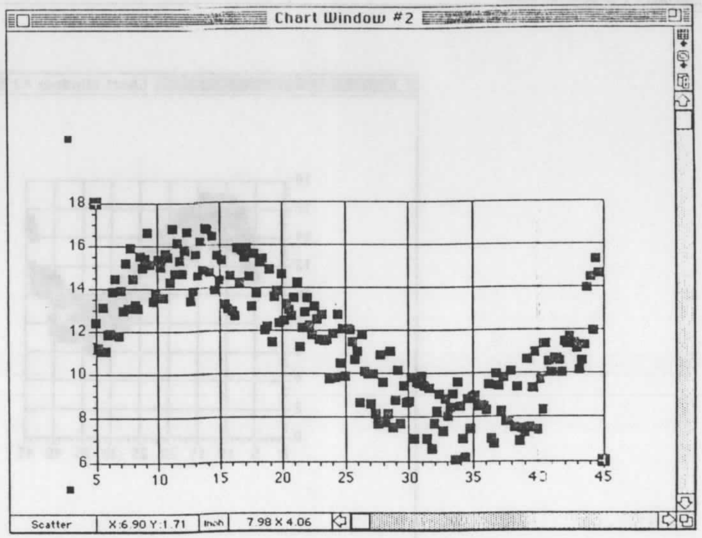
   This computes the best starting and ending values for the Y axis based on the data plotted.

4. **Click "OK."**

5. **Repeat steps 2-4 for the X axis.**

6. **Click "OK" from the "Set All" dialog.**

   Notice that the starting values for the Y (vertical) and X (horizontal) axes have changed.



Changing the Text Attributes of Axis Labels

You can use the commands from the Text menu to change the text attributes of the axis labels. Remember, you can apply attributes to more than one axis at a time by selecting the labels using the Command key (⌘). You can also set more than one attribute at a time using the "Set All..." command in the Text Menu.

Creating a Text Object

You can use the Text tool from the Toolbox to enter additional text in the Chart window.

T

1. **Select the Text tool from the Toolbox.**

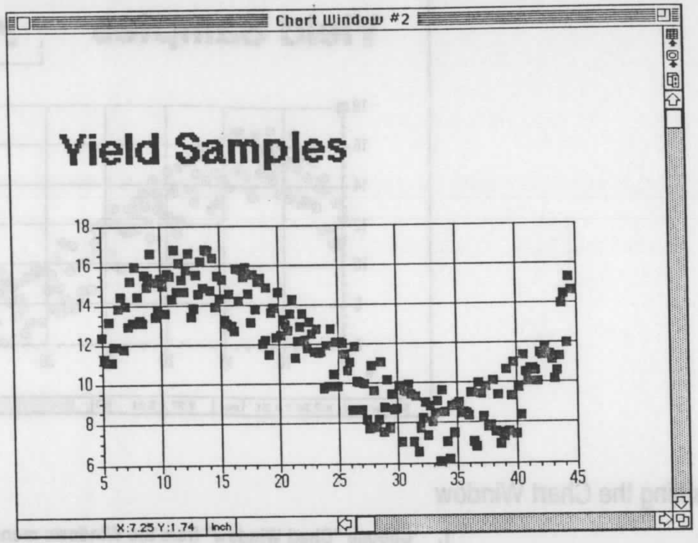
2. **Enter the title "Yield Samples" for the Chart window as you did with the 3-D Ribbon.**

3. **Select any text attributes you want from the Text menu, then type in "Yield Samples."**

   You can also set the attributes after you enter the text but you must select the text by clicking and dragging across the words. You can select tabs, alignment, and space between lines using the features of the Text ruler.

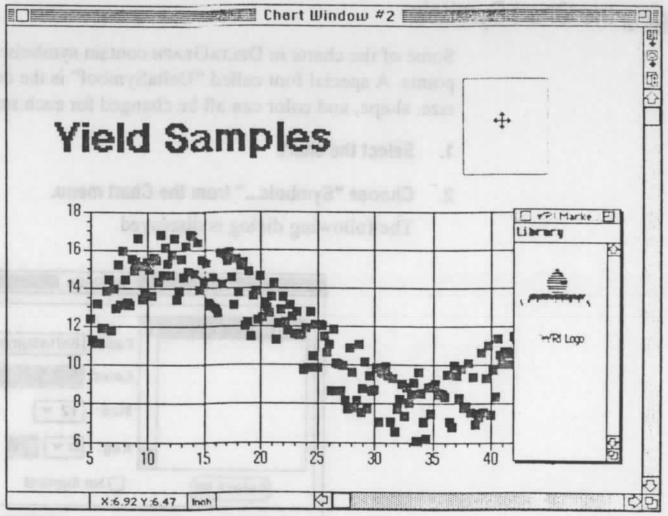
4. **Click outside of the text block.**

   The Text ruler disappears and the Text remains.

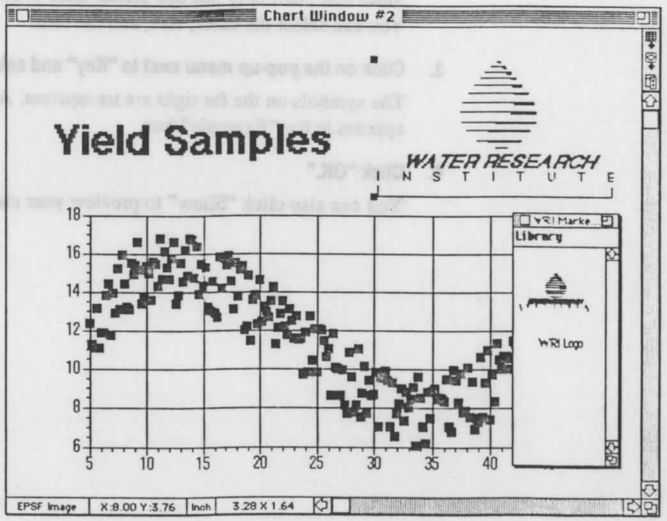


Using a Template from the Library

1. **Click on the "WRI Logo" from the "WRI Marketing Library" and drag the logo into the Chart window.**



An exact copy of the original logo appears in the Chart window and the template remains in the library. You can move the logo to reposition it.

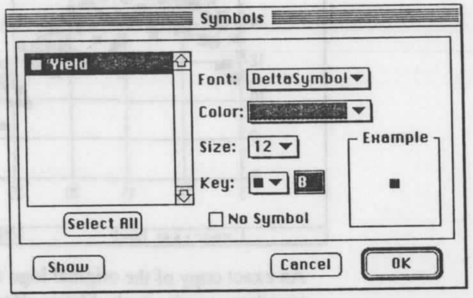


Changing the Chart Symbols

Some of the charts in DeltaGraph contain symbols which represent the data points. A special font called "DeltaSymbol" is the default for all the charts. The size, shape, and color can all be changed for each series.

1. **Select the chart.**
2. **Choose "Symbols..." from the Chart menu.**

   The following dialog is displayed



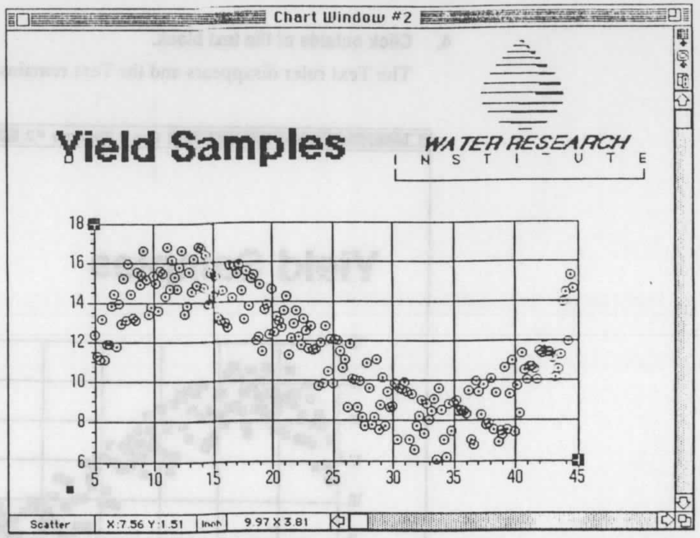
Font: DeltaSymbol
Color:
Size: 12
Key: ■ B
☐ No Symbol

Since this chart only has one series, there is only one symbol to change. You can select the color, size, and the font.

3. **Click on the pop-up menu next to "Key" and select a different symbol.**

   The symbols on the far right are transparent. An example of your choice appears in the "Example" box.
4. **Click "OK."**

   You can also click "Show" to preview your change.



Naming the Chart Window

1. **Choose "Chart Window" from the Windows menu and select "Name..." from the hierarchical menu.**
2. **Enter "Yield Samples" in the dialog.**
3. **Click "OK."**

   The new name appears in the Chart window Title bar.

Reminder: Save your file periodically. Choose "Save" from the File menu or press ⌘–S.

Creating a Bullet Chart

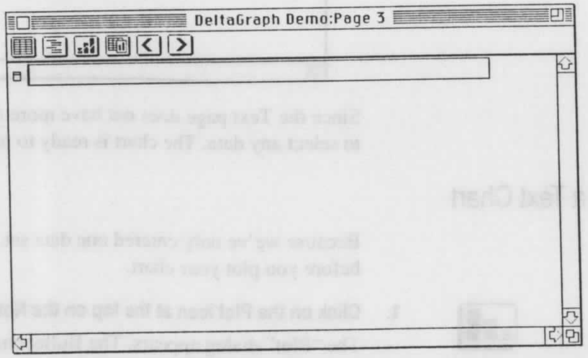
This tutorial shows you how to:

- Create a Text page
- Enter Text data
- Plot a Bullet chart
- Change the text attributes
- Change data symbols
- Change view size
- Change the frame style
- Modify chart text

Creating a Text Page

1. **Return to the Notebook window by choosing "Data Notebook" from the Windows menu.**
2. **Press the Text Page icon at the top of the Notebook window and choose "New Text Page" from the pop-up menu.**

   A blank Text page appears.



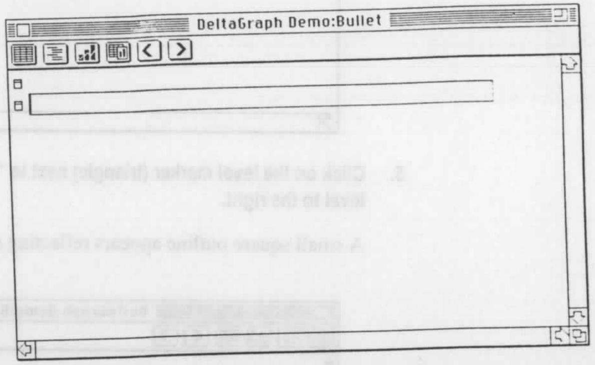
3. **Choose "Name Page..." from the Data menu and name the Text page "Bullet."**

Entering Text Data

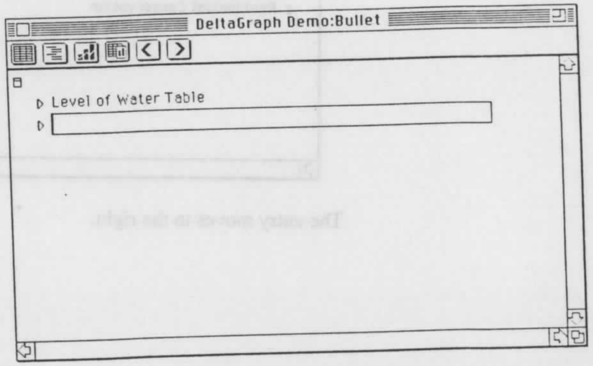
The Bullet chart we are creating does not have an entry in the Title line (first line): this will be added separately in the Chart window, so data has to be set up differently than it normally would.

1. **Press Return from the first entry.**
2. **Press ⌘–R to move the Editing box to the right, creating a sub-entry.**

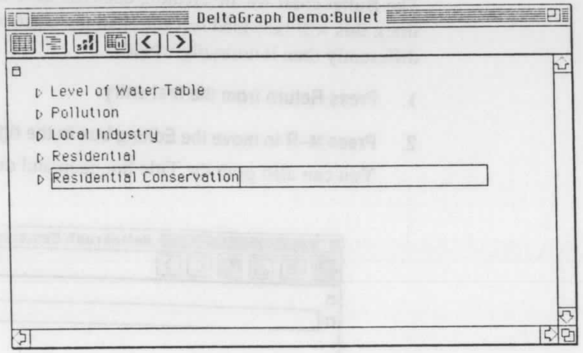
   You can also grab the Title line icon and drag it to the right.



3. **Enter "Level of Water Table" and press Return.**



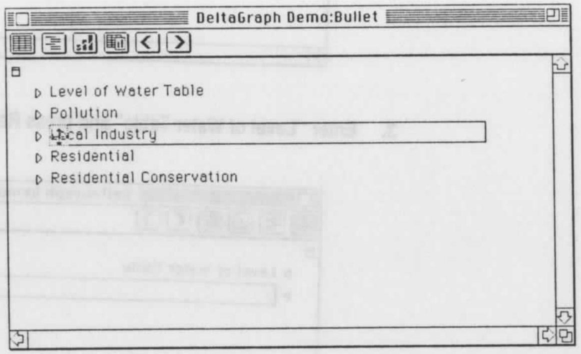
4. **Enter additional text as shown by repeating step 3.**



▷ Level of Water Table
▷ Pollution
▷ Local Industry
▷ Residential
▷ Residential Conservation

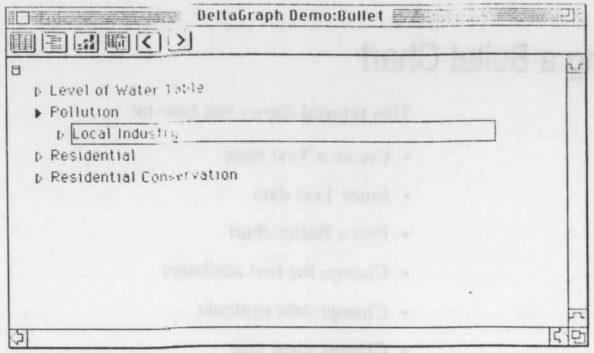
5. **Click on the level marker (triangle) next to "Local Industry" and drag it one level to the right.**

A small square outline appears reflecting movement of the entry.



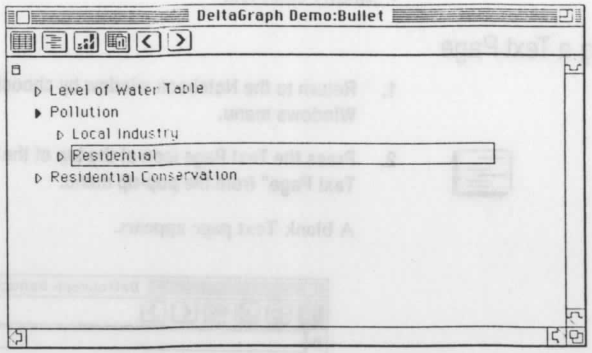
▷ Level of Water Table
▷ Pollution
▷ Local Industry
▷ Residential
▷ Residential Conservation

The entry moves to the right.



▷ Level of Water Table
▶ Pollution
    ▷ Local Industry
▷ Residential
▷ Residential Conservation

6. **Move "Residential" the same way.**



▷ Level of Water Table
▶ Pollution
    ▷ Local Industry
    ▷ Residential
▷ Residential Conservation

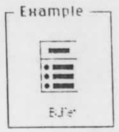
Since the Text page does not have more than one Title line, you do not have to select any data. The chart is ready to plot.

Plotting a Text Chart

Because we've only entered one data set, you do not have to select the data before you plot your chart.

1. **Click on the Plot icon at the top on the Notebook window.**

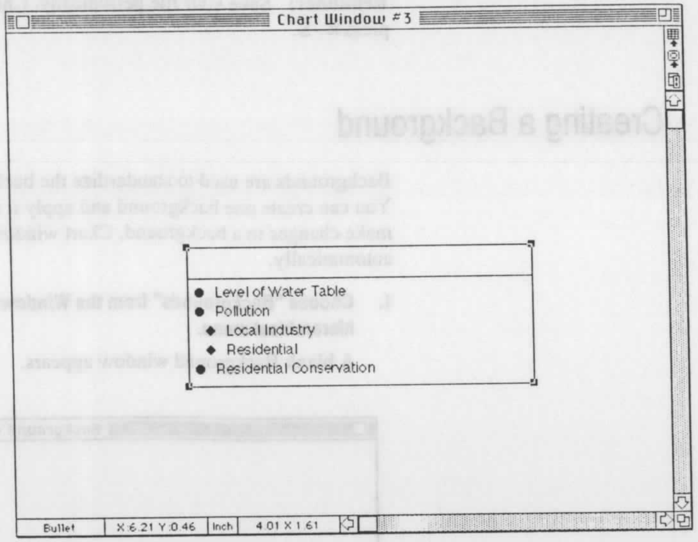
   The "Plot" dialog appears. The Bullet chart appears as the selected default chart type.



Since you cannot plot most charts from a Text page, only the "Text" category is available for you to select from.

2. **Click on the "Plot" button.**

DELTAGRAPH displays the Bullet chart in Chart Window #3, the default name Chart window.

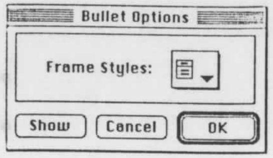


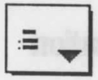
- Level of Water Table
- Pollution
  - Local Industry
  - Residential
- Residential Conservation

Using the "Options..." Command

1. **Select the chart.**
2. **Choose "Options..." from the Chart menu.**

The following dialog appears:

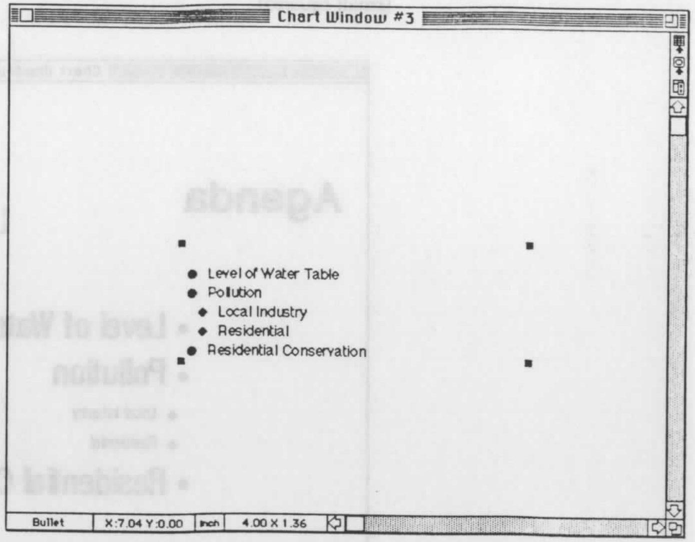




3. **Click on the pop-up menu next to "Frame Styles" and select option without a frame.**

You can use "Show" to experiment with different frame options.

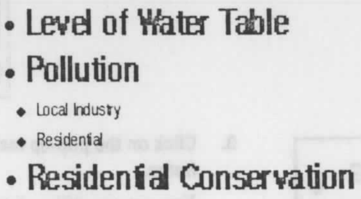
4. **Click "OK."**



- Level of Water Table
- Pollution
  - Local Industry
  - Residential
- Residential Conservation

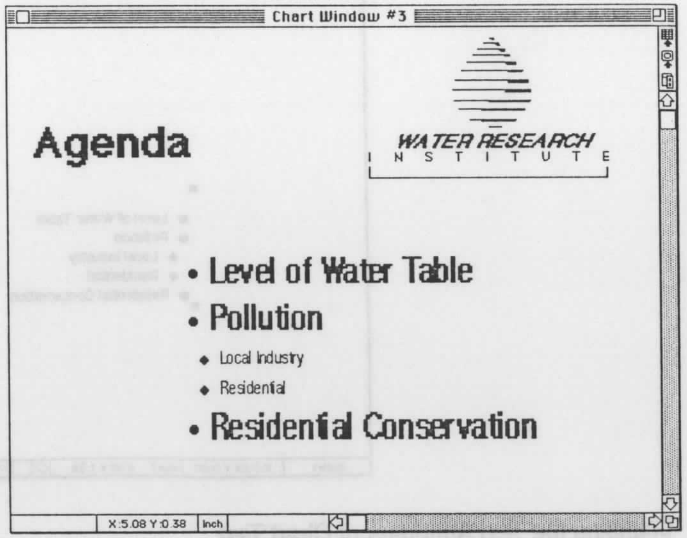
Changing the Text Attributes of Chart Text

You can use the commands from the Text menu to change the text attributes of the chart. Entries of the same hierarchical level are selected at the same time by default, but you can click again on individual entries to change one entry at a time. You can also set more than one text attribute at a time using the "Set All..." command in the Text Menu.



- Level of Water Table
- Pollution
  - Local Industry
  - Residential
- Residential Conservation

You can change the spacing of entries within the chart or stretch the chart (to fit all of an entry on one line) by clicking and dragging on the Chart object handles (small squares).



Agenda

- Level of Water Table
- Pollution
  - Local Industry
  - Residential
- Residential Conservation

Create a chart title and place the WRI logo from the library as you did in the last tutorial.

Naming the Chart Window

1. **Choose "Chart Windows" from the Windows menu and select "Name..." from the hierarchical menu.**

2. **Enter "Agenda" in the dialog.**

3. **Click "OK."**

   The new name appears in the Chart window Title bar.

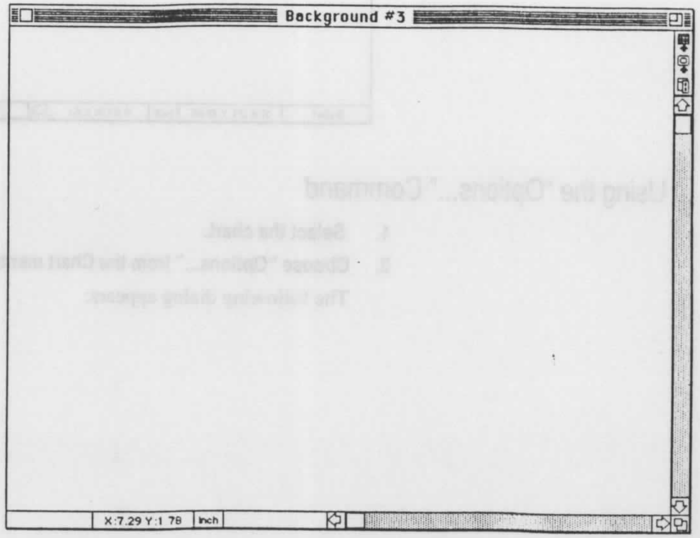
Reminder: Save your file periodically. Choose "Save" from the File menu or press ⌘–S.

Creating a Background

Backgrounds are used to standardize the backgrounds of your Chart windows. You can create one background and apply it to all of your Chart windows. If you make changes to a background, Chart windows using that background change automatically.

1. **Choose "Backgrounds" from the Windows menu and select "New" from the hierarchical menu.**

   A blank Background window appears.



2. **Choose "Number of Pages" from the Windows menu.**

   Click in the first square of the dialog to change the number of pages to one.

3. **Click "OK."**

4. **Change the view size of the window so you can see the whole page.**

   You can to this by choosing "View Size" from the Windows menu or by selecting the Magnifying Glass from the Toolbox, pressing the option key and clicking on the window.

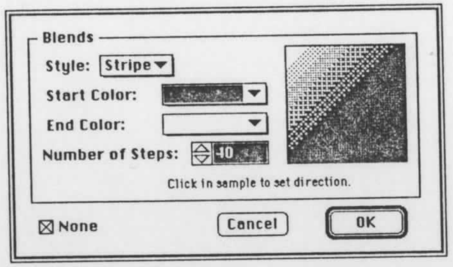
5. **Select the Rectangle tool from the Toolbox.**

6. **Create a box the size of the entire page**

   You can use the Option key to override "Snap to Grid."

7. **With the rectangle selected, select "Blends..." from the Draw menu.**

   The following dialog appears.



Blends

Style: Stripe

Start Color:

End Color:

Number of Steps: 10

Click in sample to set direction.

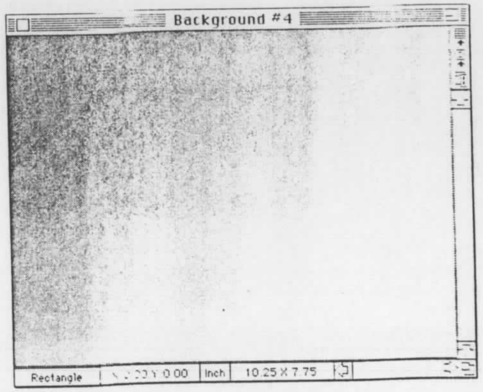
☒ None

8. **Select a blend style, color, and the number of steps in your blend.**

   You can click in the sample square to change the focal point of the blend. Make sure "None" is de-selected.

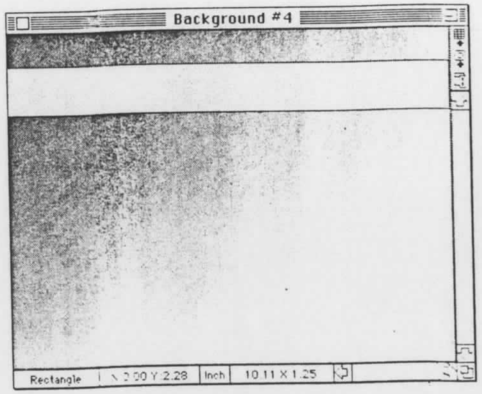
9. **Click "OK."**

   The window reappears reflecting your changes.



10. **Select the Rectangle tool again and create a band across the top of the window.**

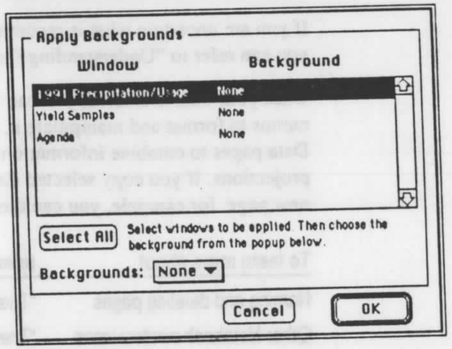
    You can use the fill or color palettes from the Toolbox to apply shading or color to the band.



Applying Backgrounds

1. **Choose "Backgrounds" from the Windows menu and select "Apply..." from the hierarchical menu.**

   The following dialog appears:



Apply Backgrounds

Window	Background
1991 Precipitation/Usage	None
Yield Samples	None
Agenda	None

Select windows to be applied. Then choose the background from the popup below.

Backgrounds: None

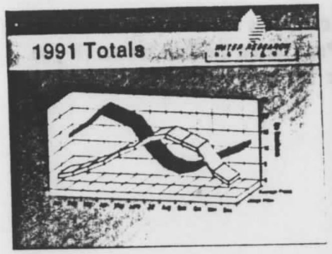
2. **Click on "Select All."**

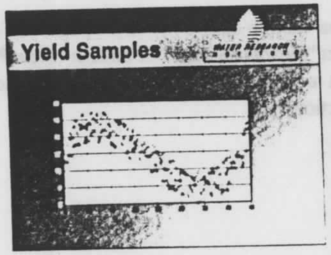
   All of the Chart windows are selected.

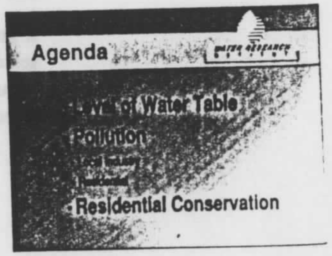
3. **Click the "Backgrounds" pop-up menu and select the background from the pop-up menu.**

4. **Click "OK."**

   The Chart windows containing your Charts now have this background. You may have to make changes to the font size, color, etc., or readjust objects within the Chart window or in the Background window to center objects. You can use the Option key to override the snap-to -grid while moving objects.







4 Organizing Data in a Data Page

This chapter explains how to set up a Data page — first entering or importing data, then editing and organizing it — so you can create 2-D, 3-D, and Table charts with a few quick clicks of the mouse.

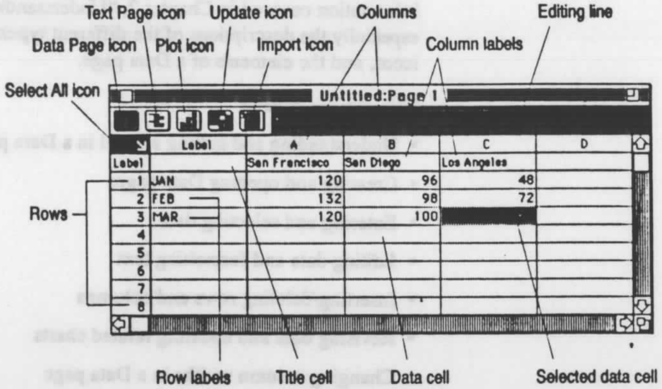
Before you begin you will find it helpful to have a clear understanding of the information covered in Chapter 2, "Understanding DELTAGRAPH Concepts," especially the descriptions of the different types of data, the Notebook window icons, and the elements of a Data page.

This chapter covers:

- **Understanding and getting around in a Data page**
- **Creating and opening Data pages**
- **Entering and selecting data**
- **Editing data and formatting text**
- **Inserting/deleting rows and columns**
- **Revising data and updating related charts**
- **Changing column widths in a Data page**
- **Importing, exporting, and linking other sources of data**
- **Subscribing to data with System 7.0**
- **Changing the format of the data**
- **Applying numerical formats to data**
- **Applying mathematical functions to selected columns of data**
- **Printing Data pages**

Understanding a Data Page

An empty Data page, as shown in Figure 4-1, is the first thing you see when you open the DeltaGraph application. This is where you enter or import data for most DeltaGraph charts. (Data for Bullet and Organizational charts is set up in a Text page, as explained in Chapter 5, "Organizing Text Data in a Text Page.") Each Data page accommodates up to 10,000 rows and 256 columns.



↘	Label	A	B	C	D
Label		San Francisco	San Diego	Los Angeles	
1	JAN	120	96	48	
2	FEB	132	98	72	
3	MAR	120	100		
4					
5					
6					
7					
8					

FIGURE 4-1. A DATA PAGE

The Editing line at the top of the page (see Fig. 4-1) displays the contents of the selected cell. This is where you enter and edit all your data. When the mouse pointer moves into the Editing line, it changes to an I-beam cursor., indicating that you enter keyboard data or make text changes here.

You can have two types of labels in a Data page (see Fig. 4-1): Row labels, which are numbered cells that precede each row down the left side of the page; and Column labels, which are the lettered cells at the top of the page above each column.

Adding labels in the Data page is not essential to creating the final chart, but they (1) help you keep track of your data as it is entered and (2) identify the different axes on many charts.

Which labels you need and where you should position them on the Data page depend on the type of chart you plan to create. For example: a Bar chart uses both row and column labels; a Paired Scatter chart uses no row labels and only every other column label; a Table chart is basically all labels; and a Contour Fill chart doesn't need any labels at all.

If you are uncertain what is recommended for the type of chart you want to plot, you can refer to "Understanding the Types of Charts" in Chapter 6.

Once your data is entered, you can use commands in the Edit, Text, and Data menus to format and manipulate it. You can also cut and paste data between Data pages to combine information from different sources for experiments and projections. If you copy selected data from several sources and paste it into a new page, for example, you can then plot a chart to test a particular hypothesis.

To learn more about	refer to
Naming and deleting pages	"The Notebook Window" in Chapter 2
Other Notebook window icons	"The Notebook Window" in Chapter 2
Organizing data for certain chart types	"Understanding the Types of Charts" in Chapter 6
Adding numerical formats to labels	"Using the 'Format...' Command" later in this chapter

Displaying a Data Page

Although you can have an unlimited number of Data pages in the Notebook, you can have only one open at a time. To display a list of the Data pages associated with the current file, press the Data Page icon at the top of the window; to open one of the pages, select it from pop-up menu.

If you want to open a new Data page, you can press the Data page icon and select "New Data Page" or choose "New Page" from the Data menu. (If you want to open a Text page instead, press the Text page icon and make your selection.

Getting Around in a Data Page

The horizontal and vertical Scroll bars make it easy to navigate through large sets of data. The Scroll bars work in the standard manner with one exception: the vertical Scroll bar is calibrated to 1,000 rows so you can fine-tune your scrolling position when working with average-size data sets. This means that when you drag the vertical Scroll box to the bottom of the Scroll bar, DELTAGRAPH displays row 1,000 at the top of the page — unless your page contains more than 1,000 rows of data, in which case DELTAGRAPH displays the next number divisible by 100.

The different ways of moving around a Data page and selecting individual cells are outlined in Table 4-1. When using key combinations, remember to press both keys simultaneously.

TABLE 4-1. MOVING THROUGH THE DATA PAGE

KEY(S)	MOVEMENT
Left-arrow	Moves selection to left one cell, or registers entry from Editing line then selects cell to the left of current selection.
Right-arrow	Moves selection to right one cell, or registers entry then selects cell to the right of current selection.
Up-arrow	Moves selection up one cell, or registers entry then selects cell above current selection.
Down-arrow	Moves selection down one cell, or registers entry then selects cell below current selection.
Return	Same as Down-arrow.
Tab	Same as Right-arrow.
Shift–Tab	Same as Left-arrow.
Shift–Return	Same as Up-arrow.
Click	Selects cell under mouse pointer, or registers entry then selects cell under mouse pointer.

Entering Data in a Data Page

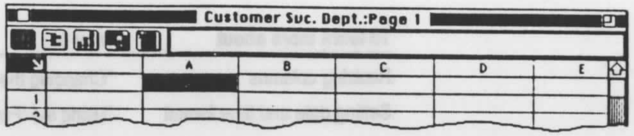
Before you begin entering your data, be sure you know how to move around in a Data page. And if you're uncertain of the best way to organize your data for the type of chart you want to plot, refer to "Understanding the Types of Charts" in Chapter 6 for recommendations.

To learn more about	**refer to**
Organizing data for certain chart types	"Understanding the Types of Charts" in Chapter 6
Chart types	Appendix A, "DELTAGRAPH Chart Types"
Reversing data in the Data page	"Transposing Data Information" later in this chapter

To enter data in a Data page:

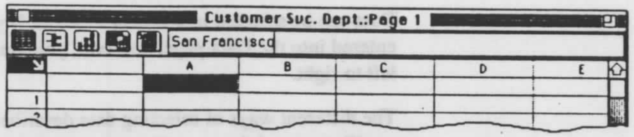
1. **Use the mouse or arrow keys to select a cell.**

   If the cell is empty, the insertion point flashes on the Editing line.



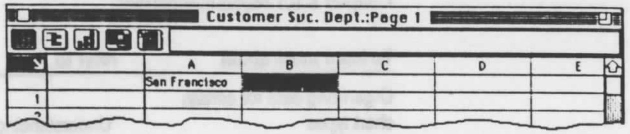
   If the cell is *not* empty, its contents appear (selected) on the Editing line. Anything typed in at this point overwrites the current entry. If you only want to edit the current entry, be sure to click somewhere on the Editing line to de-select the data before making changes.

2. **Enter the data on the Editing line.**



If you make a mistake entering data, backspace with the Delete key or drag to select the incorrect characters, then type in your corrections.

3. **Click the mouse button or press Return or any arrow key to register the entry and advance to the next cell.**



If the entry is long, you might not be able to see it all, but it is there. You can resize columns to accommodate longer (or shorter) entries.

4. **Repeat steps 2–3 until all your data is entered.**

Note: To enter a date (other than year only) for a column or row label, you must enter the date then use the "Format..." command in the Data menu to set the format for each date. Otherwise the date appears in the Macintosh numerical format for calculations.

To learn more about	refer to
Resizing columns	"Changing the Column Width" later in this chapter
Setting date and time format	"Using the 'Format...' Command" later in this chapter

Selecting Data

Before you can plot a chart, you must select the data you want included. You can select all or only a portion of the Data page. This allows you to choose what data gets plotted, enabling you to have more than one chart's worth of information on a Data page.

Data can be selected in a variety of ways. If you want it plotted exactly as it is entered into the Data page, however, you must select it from top down and from left to right.

The different ways of selecting data described below include the techniques you'll need to delete or add rows and columns; to cut, copy, delete, or edit data; and to plot nonadjacent and nonconsecutive data blocks.

Selecting a single cell Click in the cell or use the arrow keys, Tab key, or Return key to select the desired cell. The contents of the selected cell appears on the Editing line.

Selecting a row of data Click on the number label at the left of the desired row. The entire row is selected, and the row label, if any, appears on the Editing line.

Selecting a column of data Click on the letter label above the desired column. The entire column is selected, and the column label, if any, appears on the Editing line.

Selecting more than one row or column Select the first or last row or column in the group you want, then drag to complete the selection.

Selecting a block of data Click on the first cell of the block, then hold down the Shift key and click on the cell in the opposite corner of the block. The contents of the first cell selected appears on the Editing line.

Selecting a group of continuous data Drag the mouse pointer across the data you want selected. If the data is not entirely visible in the window, keep dragging and DELTAGRAPH scrolls the data automatically. The contents of the first cell selected appears on the Editing line.

Selecting nonadjacent cells or blocks of data Hold down the Command key (⌘) while selecting data that is not side by side. You can select any combination of cells, rows, columns, and data blocks in this manner. The Command key is also used to extend a selection.

Selecting columns in nonconsecutive order for plotting To plot data in a different order than it is in the Data page, hold down the Command key (⌘) while selecting columns in the order that you want the data plotted. Rows can be selected in this manner only if "In Rows" is selected from the "Series" command in the Data menu. The Command key is also used to extend a selection.

Selecting all data in the Data page Click on the Select All icon (see Fig. 4-1), choose "Select All" from the Edit menu or type ⌘–A. These commands select all data in the Data page, including the lowest right-hand cell that contains data. This method may also select empty cells, which is not desirable when plotting.

Editing Data

To edit data (that is, to cut, copy, delete, replace, or otherwise change the words or numbers you've entered or imported), you must first select the data you want to change.

The contents of the selected cell (or the first cell of a selected block) appears selected on the Editing line. Anything you type at this point completely replaces this entry. (You must click on the Editing line to de-select the type if you want to edit just a portion of the entry.) If you use the "Cut," "Copy," "Paste," or "Clear" commands now, the entire selection is effected.

DELTAGRAPH gives you the following editing options on a Data page. You can:

Change a single data cell Select the cell you want to edit, then type in replacement text or use the commands in the Edit menu to cut, copy, paste, or clear the selections. If you want to edit just a portion of the entry, click on the Editing line to de-select the type before proceeding. Press Return or an arrow key to register the change.

Insert an empty row Select the row you want preceded by the new row, then choose "Insert Rows" from the Data menu or type ⌘–J. To insert more than one row: select the same number of rows you want to insert, starting with the row you want preceded by the new rows. The new row(s) appear just above the selected row(s).

Insert an empty column Select the column you want preceded by the new column, then choose "Insert Columns" from the Data menu or type ⌘–J. To insert more than one column: select the same number of columns you want to insert, starting with the column you want preceded by the new columns. The new column(s) appear just to the left of the selected column(s).

Delete rows Select the row(s) you want to delete, then choose "Delete Rows" from the Data menu or type ⌘–J. Existing rows move up to occupy the deleted row(s).

Delete columns Select the column or column(s) you want to delete, then choose "Delete Columns" from the Data menu or type ⌘–J. Existing columns move to the left to occupy the deleted column(s).

Note: When pasting data, select the top left-hand cell of the block to receive data. Any existing data is overwritten.

To learn more about	refer to
Selecting cells, rows, and columns	"Selecting Data" earlier in this chapter
"Cut," "Copy," and "Paste"	"Edit Menu" in Chapter 16

Formatting Text in a Data Page

Default for text in a Data page is 10-point Geneva, plain black, set flush left. You can use commands in the Text menu to change the font, size, style, alignment, and/or color of this text. "Alignment" options ("Left," "Center," and "Right" are the only ones that apply to the Data page) affect selected text only; the other commands affect all text on the current page.

To change one text attribute, choose the appropriate command from the Text menu and select an option from the hierarchical menu. To change several attributes at one time, choose "Set All..." from the Text menu (⌘–H) and specify your changes in the dialog that appears.

Dimmed commands — The "Shadow...,""Hidden" and "Outline" — are not available.

To learn more about	refer to
Commands in the Text menu	"Text Menu" in Chapter 16

You can also create super- and subscript characters in the data page by selecting a command from the "Special Text" pop-up menu within the Text menu. When these "Special Text" commands are selected a special character sequence is entered into the selected cell creating super- or subscript characters or entering a line break.

The super- and subscript commands within the "Style" pop-up menu are only used in the Chart window.

To create a Special Text character:

1. **Click on the data cell.**
2. **In the Editing line, insert the cursor in front of the character you want to change.**
3. **Select "Insert Superscript," "Insert Subscript," or "Insert Linebreak" from the "Special Text" pop-up menu or type in the special character sequence as displayed in the pop-up menu.**

   The special character sequence appears in front of the character. The character will only appear changed in the Chart window. If you want to enter a normal character after the super-or subscript character, then you must select "Insert Normal" directly after the character or characters.

Example: These are /+ special text /= characters

These are $^{\text{special text}}$ characters

Changing the Column Width

If you are working with especially long or short data entries, you can adjust the column width to a more appropriate size. You can also change the size of more than one column at a time by selecting more than one column. When you resize one column, they are all resized to the same width.

To change the width of a column:

1. **Place the mouse pointer at the top of the dotted line to the right of the column you want to resize.**

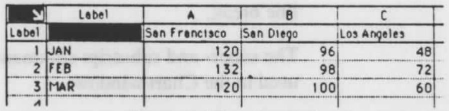
   The pointer changes to the Column Width icon.

2. **Click on the mouse and drag the column line to a new position.**

   Only the column to the left of the line you moved is resized.

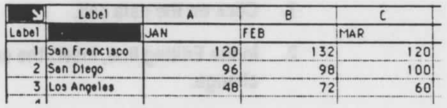
Transposing Data Information

You can choose "Transpose" from the Data menu to physically switch the position of rows and columns. "Transpose" works on all data on the page regardless of what is selected. The command is available only when you're in a Data page.



	Label	A	B	C
Label		San Francisco	San Diego	Los Angeles
1	JAN	120	96	48
2	FEB	132	98	72
3	MAR	120	100	60

BEFORE "TRANSPOSE"



	Label	A	B	C
Label		JAN	FEB	MAR
1	San Francisco	120	132	120
2	San Diego	96	98	100
3	Los Angeles	48	72	60

AFTER "TRANSPOSE"

The "Series" command in the Data menu works the same way except the data is not physically reversed in the Data page, it is transposed internally. Charts plotted using either command appear the same in the Chart window.

"Series" can be used when you already have charts generated using the same Data page. Physically altering a Data page used by existing charts may damage the data contained in the chart.

Revising Your Data and Updating Related Charts

Occasionally you may want to revise the data in a Data page then update one or more of the charts plotted from this data. To update *all* the charts associated with a page, make the necessary changes in the Data page, then use the "Update" icon (top of page) or command (Data menu); all related charts are updated automatically. To update just *one* particular chart, choose "Revise Data" from the Data menu after selecting the chart; this sends you back to the originating Data page where you make your changes then click a button to update the chart.

To learn more about	refer to
Updating all related charts	"Updating Your Charts" in Chapter 6
Revising one chart only	"Revising Chart Data" in Chapter 6

Importing Data

Use the "Import" command in the File menu to bring data from another application into a Data page.

The Imported data overwrites *all* existing data. You can open a new Data page to receive data or use a page of data that you do not want to keep.

DELTAGRAPH imports the following data formats:

Tab-Delimited Text ASCII file, each field separated by a tab

Comma-Delimited Text ASCII file, each field separated by a comma

WKS From Lotus® 123 compatible files

SYLK Symbolic Link file format

Trapeze From DeltaPoint Trapeze files

Excel Microsoft® Excel 2.2 or 3.0 files

Cricket Graph 1.2 or 1.3 files

Space-Delimited Text ASCII file, each field separated by a space

Custom-Delimited Text ASCII file, allows you to enter a custom string of separators for your imported data. You can enter up to three characters.

Most Macintosh applications create tab-delimited text files. To determine what format a file contains, use a word processing program to open the data file, then look to see how each field is separated.

To import data from another application:

1. **Open a new Data page or one you no longer need.**

   Remember, imported data overwrites all existing data.

2. **Choose "Import" from the File menu, or click on the Import icon at the top of the page.**

   This displays a hierarchical menu showing the data formats you can import.

3. **Select the format you want.**

   An "Open" dialog appears, so you can select a file to import. If you choose Trapeze, Excel, or Cricket Graph, you see only the names of files created by those applications.

4. **Double-click on the name of the file you want to import, or select the file then click on the "Open" button.**

   The data arrives on the Data page, overwriting all data previously on the page.

   If the first row or column of the imported data contains any text, the data arrives beginning in the "Label" row and column. If the first column of the imported data is numerical, the data arrives beginning in column A, row 1.

   After importing the data, you might need to use the "Cut" (⌘–X) and "Paste" (⌘–V) commands in the Edit menu to rearrange column and row labels.

Note: When you import a Trapeze data file, the "Choose Trapeze Blocks to Import" dialog appears. Select data from the left side of this dialog, then click "Move." When you have selected all the data blocks you want, click "OK." The data appears on the current Data page, overwriting all existing data.

Linking Excel Data

You can create a link between an Excel 2.2 or 3.0 spreadsheet file and a DeltaGraph Data page. This makes it easy to update related DeltaGraph charts when you change data in your Excel spreadsheet.

You can also link a named range of data from the Excel file the same way. If any part of the selected block of data within Excel is part of a named range anytime that range is changed, DeltaGraph is updated.

To learn more about	refer to
Naming a range in Excel	"Microsoft Excel User's Guide"

To link an Excel file to a DeltaGraph file:

1. **Save your Excel document.**

2. **Select and copy the range of data you want linked to DeltaGraph.**

3. **Close Excel.**

   This is not necessary if you are running MultiFinder or System 7.0 and have sufficient RAM available.

4. **Open DeltaGraph.**

5. **Open the destination Data page in a new or existing DeltaGraph file.**

6. **Choose "Link" from the Data menu or type ⌘–L.**

   The "Link" command writes the selected Excel data into the Data page, starting in the upper left-hand corner and overwriting any existing data. It creates a link to the Excel file and automatically renames the current Data page with the title of the linked Excel document.

   You can create only one link per Data page. A link works only when the Excel file has been named and saved.

Note: The link is automatically broken if you rename the linked Excel file or move it to another folder.

Updating Linked Data

Once the link is established, whenever you modify and save the data in the linked Excel file and then open the related DeltaGraph file, DeltaGraph automatically updates the data in the linked Data page and all associated charts to reflect any changes.

Editing Linked Data

You can edit data on the linked Data page, but if you subsequently modify the Excel file and then activate the DELTAGRAPH file, your changes to the Data page are replaced by the updated Excel data. To preserve any changes made to a linked Data page, you must unlink the files.

Unlinking the Document

The "Link" command changes to "Unlink" when the current Data page is linked to an Excel file. Choosing "Unlink" breaks the link between the Excel file and the Data page. The data remains in the Data page, but DELTAGRAPH no longer automatically updates it when you change Excel data.

Exporting Data

When you use the "Export" command, DELTAGRAPH exports the entire contents of a Data page (regardless of what is selected) as tab-delimited text, which can be read by most other application.

To export data from DELTAGRAPH:

1. **Open the Data page that contains the data you want to export.**
2. **Choose "Export" from the File menu and select "Tab-Delimited Text" from the hierarchical menu.**

   A variation of the "Save As..." dialog appears. DELTAGRAPH assigns the export file a default name consisting of the current page name, a period, and the word "text."
3. **Choose your destination and type in a new name as desired.**
4. **Click "Save" or press Return.**

   The data is saved to the specified disk and folder.

Subscribing to Data

DELTAGRAPH supports Subscribing to data with Macintosh System 7.0. Subscribing is another form of linking which allows you to access "published" data created in other applications that also support this feature.

Publishing and Subscribing commands are found in the Edit menu, if you are not using system 7.0 these commands do not appear.

Published files are referred to as editions. When changes are made to a published edition, and the file containing the edition is saved, all files linked to that edition also change.

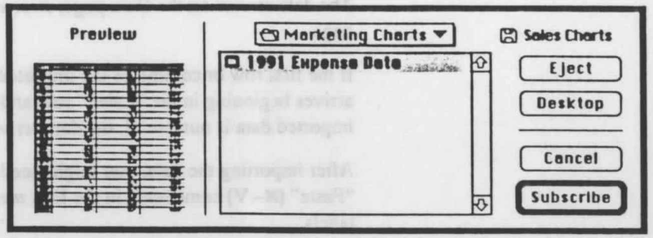
Subscribing to Published Editions

The edition you are subscribing to must be published within the other application. Refer to the owners manual for that application to find out how to publish data. A Data page in DELTAGRAPH must be active in order to subscribe to the published edition.

To subscribe to an edition:

1. **Select a new Data page.**
2. **Choose "Subscribe to..." from the Edit menu.**

   The following dialog appears containing a list of all published editions. Double-click on an edition to display a preview.



2. **Select the name of a Published edition, and click "Subscribe" to subscribe to the edition.**

   The subscribed edition appears on the Data page starting in the upper right corner. A dark border surrounds the data indicating it is subscribed to. You can remove the border by selecting "Hide Borders..." from the Edit menu.

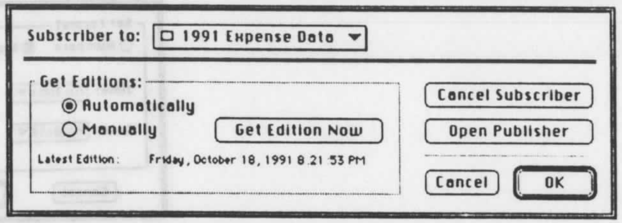
Using the "Subscriber Options..."

Subscriber options are used to determine when updates to edition are made, canceling a subscriber, or accessing the publisher.

To set Subscriber options:

1. **Select the Data page in which the subscribed edition appears.**
2. **Choose "Subscriber Options..." from the Edit menu.**

   The following dialog appears with the name of the subscribed edition at the top.



Subscriber to: 1991 Expense Data

Get Editions: ● Automatically ○ Manually

Latest Edition: Friday, October 18, 1991 8:21:53 PM

3. **Make your selections as needed.**

   You have the following options:

   Get Editions Controls when you will receive updates to the subscribed edition. If "Automatically" is selected, your edition is updated every time the publisher changes the edition. If "Manually" is selected, you must click "Get Edition Now" to update your edition.

   Cancel Subscriber Removes your link to the publisher, but the data still remains in the Data page.

   Open Publisher Launches the publisher application for your subscribed edition.

4. **To change you subscriber options, click "OK."**

   If you want to exit the dialog without changing the options, click "Cancel."

To learn more about	refer to
Macintosh System 7.0	"Apple Macintosh System 7.0 User's Guide"
Publishing and Subscribing to Graphics	"Publishing and Subscribing to Graphics" in Chapter 11

Using the "Format..." Command

You can use the "Format..." command in the Data menu to automatically reformat numerical data as times, dates, currency, percentages, or scientific values.

Some of the formatting you specify in a Data page carries over to the related charts, some does not. When you format row and/or column labels in a Data page, the related charts: Category and/or Series axis labels are formatted automatically. When you format data, however, the chart's Value axis labels are not affected; you must format these from the Chart window.

From the Chart window you can select and format the labels. From the Data page you can select and format the data. When the chart is initially plotted, the format used in the first data cell is used to determine the format of the chart. If you need to change the format of the chart, you must change it from within the Chart window. Once the chart is plotted, changing the format in the Data page will have no affect on the chart.

To learn more about	refer to
Selecting data	"Selecting Data" earlier in this chapter

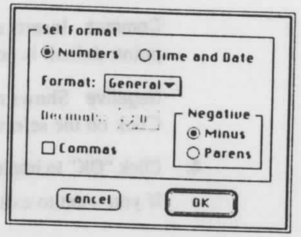
To reformat numerical data as currency, percentages or scientific values:

1. **Select the data you want to reformat.**

   In the Data page, you can reformat selected row labels, column levels, and data. In the Chart window, you can reformat selected value axis labels.

2. **Choose "Format..." from the Data menu or type ⌘–F.**

   The "Set Format" dialog appears with defaults set as shown below. A highlighted selection button indicates the option is on.



Set Format: ● Numbers ○ Time and Date

Format: General

☐ Commas

Negative: ● Minus ○ Parens

3. **Make your selections and enter data as needed.**

   You have the following options:

   Format Displays a pop-up menu so you can choose one of the following formats to apply to selected data.

   General Shows numbers as you entered or imported them into the Data page; this is the default format.

   Fixed Adds a fixed number of decimal places, as specified next to "Decimals." Example: with a "Decimal" placement of "1," 15 changes to 15.0.

   Currency Places a dollar sign ($) before the number. Example: 15 changes to $15.

   Percent Adds two zeros and a percent sign (%) after the number. Example: 15 is changed to 1500%.

   Scientific (E) Shows numbers in scientific notation. Example: 15 (with 1 in "Decimals" entry box) changes to 1.5E+1.

   Scientific (10) Shows numbers in scientific notation, with the exponents displayed as superscripts. Example: 15 (with 1 in "Decimals" entry box) changes to 1.5x10^+1.

   Engineering (E) Shows numbers in scientific notation, with powers of 10 automatically changed to multiples of 3. Example: 15 (with 1 in "Decimals" entry box) changes to 15.0E+1.

   Engineering (10) Shows numbers in scientific notation, with powers of 10 automatically changed to multiples of 3 and the exponents displayed as superscripts. Example: 15 (with 1 in "Decimals" entry box) changes to 1.5x10^+1.

   Decimals Sets the number of decimal places from 0 (default) to 15. Not available when "General" is the selected format.

   Commas Inserts a comma every three places to the left of the decimal point; default is no commas.

   Negative Shows negative values with minus sign (default) or parentheses. Click on the selection button to make your choice.

4. **Click "OK" to implement the changes.**

   If you want to exit the dialog without making any changes, click "Cancel."

To reformat numerical data as times and/or dates:

1. **Select the data you want to reformat.**

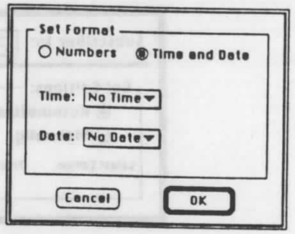
   In the Data page, you can reformat selected row labels, column levels, and data. In the Chart window, you can reformat selected value axis labels.

2. **Choose "Format..." from the Data menu or type ⌘-F.**

   The "Set Format" dialog appears, as shown in preceding step sequence.

3. **Click on the "Time and Date" selection button.**

   The dialog changes to display the time and date options.



Set Format

○ Numbers ● Time and Date

Time: No Time

Date: No Date

4. **Make your selections and enter data as needed.**

   You have the following options:

   Time: Displays a pop-up menu so you can choose one of the following time formats to apply to selected data.

No Time	Displays date only.
MM:SS	59:30
HH:MM	12:59 PM
HH:MM:SS	12:59:30 PM
24HH:MM	24:59
24HH:MM:SS	24:59:30

   Date: Displays a pop-up menu so you can choose one of the following date formats to apply to selected data.

No Date	Displays time only.
Short Date	1/1/91

Abbr. Date	Jan 1, 91
Abbr. Date With Day	Tue Jan 1, 91
Long Date	January 1, 1991
Long Date With Day	Monday January 1, 1991
Day-Month-Year	1-Jan-91
Day-Month	1-Jan
Month-Year	Jan-1991
Year	1991
Month	January
Abbr. Month	Jan
Weekday	Monday
Abbr. Weekday	Mon

5. **Click "OK" to implement the changes.**

   If you want to exit the dialog without making any changes, click "Cancel."

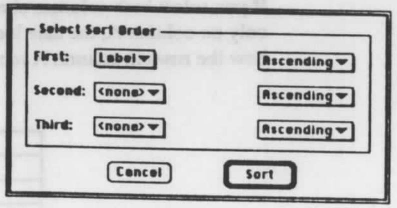
Sorting Data

You can sort selected numbers or text in any column into ascending or descending order. You can perform a secondary and tertiary sort, within the main sort, on a second and third column of data. DELTAGRAPH does not sort column labels in the first row labeled "Label."

To sort selected data:

1. **Select the column(s) of data you want to sort.**
2. **Choose "Sort..." from the Data menu.**

   The "Select Sort Order" dialog appears.



First: Label Ascending
Second: <none> Ascending
Third: <none> Ascending

3. **Make your selections as needed.**

   First, Second, Third Each option displays a pop-up menu listing the letter labels of the selected columns so you can choose the column you want sorted.

   Ascending/Descending Displays a pop-up menu so you can select how you want the selected column sorted. "Ascending" (default) sorts from smallest to largest, top to bottom; "Descending" sorts from largest to smallest, top to bottom.

4. **Click on "Sort" to reorder the columns according to your choices.**

   If you want to exit the dialog without making any changes, click "Cancel."

You can sort an unlimited number of columns if you do them individually and not relative to each other. Simply repeat steps 1 through 4 for each column of data you want to sort.

There may be times when you want to sort a second or third column of data relative to the first. For example, consider a column of data containing random numbers, some of which are identical. Then consider an adjacent column also containing random numbers. Suppose you want to arrange the data numerically in ascending order.

The data might look like this before you sort it:

A	B
15	26
10	37
11	36
14	68
11	45
11	22

If you select both columns simultaneously and perform an ascending-order sort only on column A, the data looks like the following list when you finish. Notice how the rows in column A remain paired with the rows in column B.

A	B
10	37
11	45
11	36
11	22
14	68
15	26

Sorting a Second Column of Data Subject to the First

If, however, you select both columns simultaneously and perform a primary ascending-order sort on column A and a secondary ascending-order sort on column B, the data looks like the following list. Notice that the only changes are to the rows with the number 11 in the A column. These rows are now in numerical order based on the values in column B.

A	B
10	37
11	22
11	36
11	45
14	68
15	26

Using the "Formula Builder..." Command

You can use the "Formula Builder..." command in the Data page to perform calculations on selected columns of data and fill a single cell or an entire column with values, times, and/or dates. Before you can access the "Formula Builder..." command from the Data menu you must select an unused column (calculations overwrite any existing data) in a Data page to act as a destination column for the results of your calculations.

Selecting "Formula Builder..." opens a dialog (see Fig. 4-2) in which you build the formula on which your calculations are based. The functions themselves are columnar; that is, they act on one or more columns of data that you then select from the "Formula Builder" dialog.

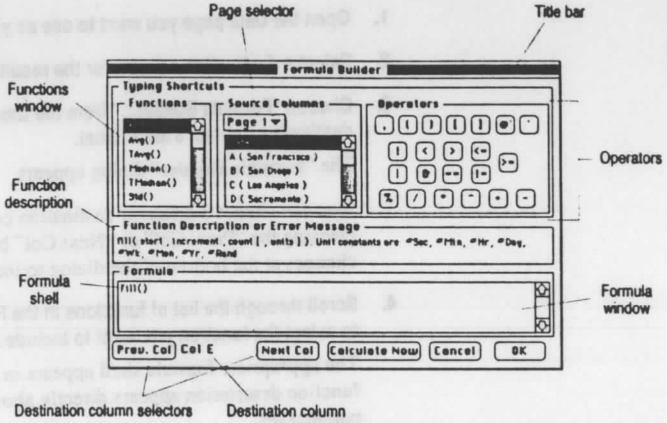
Function calculations are based on the initial values of the source data. Changing the source data does not affect the numbers in columns created by functions (destination columns). When the source data changes, you must recompute the function to update the destination column(s).

Also, DELTAGRAPH remembers what function was last used in a particular column. When you select a column whose data was created by a function, that function is automatically selected when you return to the "Formula Builder" dialog.

Note: To update all associated charts after adding one or more columns of calculated data to a Data page, you can click on the Update icon at the top of the Notebook window, choose "Update" from the Data menu, or type ⌘–= (equal sign).

The items in the "Typing Shortcuts" section of the "Formula Builder" dialog are there as aids to create your formula, they act as alternative to typing the function/formula in (see Fig. 4-2).

To learn more about	refer to
Selecting columns	"Selecting Data" earlier in this chapter



Fill(start , increment , count [, units]). Unit constants are #Sec, #Min, #Hr, #Day, #Wk, #Mon, #Yr, #Rand

Fill()

FIGURE 4-2. THE "FORMULA BUILDER" DIALOG

TABLE 4-2. "FORMULA BUILDER" DIALOG ELEMENTS

ELEMENT	DESCRIPTION
Destination column	The label of the column selected to receive the results of the specified calculations. You can change the destination column by pressing the destination column selectors.
Destination column selector	Click on these two buttons to change the destination column of the function results. You can choose any column on the original destination page.
Formula window	Displays the function formula as you create it.
Formula shell	A template for pre-programed formula calculations. See "Functions window" below to create a Formula shell. "Understanding the DELTAGRAPH Functions" later in this chapter explains how to enter data into the shell.
Function description	Outlines what information is required in the Formula shell to complete the function formula.

TABLE 4-2. "FORMULA BUILDER" DIALOG ELEMENTS CONTINUED

ELEMENT	DESCRIPTION
Functions window	Lists all of the functions you can apply automatically. To choose one, you can type the function name in the Formula window, or you can double-click on its listing. The function name and a formula shell is displayed in the Formula window and a brief description of what's required to complete the formula appears just above the window.
Operators	Operators are used to enter constants. You can click the appropriate buttons or use the standard key strokes to include operators in your formula. The function of some of these should be obvious; brief explanations of some of the not-so-obvious operators follows. **#True** You can also type in a 1. **#False** You can also type in a 0. ; Number separator. [/] Takes the row number from the annotated column; for example, B[4] takes the entry from the fourth row of column B. @' and ' Used when entering a date or time, as in, @'July 4, 1992', @'7/4/92', or @'10:29:59' (used in Fill function only) ! Logical inversion (changes true to false and vice versa). % Divides by 100. # Hash constants. This operator is used to identify a name as a constant (i.e., #True). ^ A caret. Signifies exponentiation in the formulas as binary operators.

TABLE 4-2. "FORMULA BUILDER" DIALOG ELEMENTS CONTINUED

ELEMENT	DESCRIPTION
Page selector	Displays a pop-up menu so you can choose page(s) from which to select source columns for your calculations. This allows you to use columns from different pages in the same formula and to set up functions for more than one page at a time.
Source Columns window	Lists all the column labels for the selected page so you can choose source columns for your calculations. When you open the dialog, the page that contains your destination column is the selected page. You can select a different Data page by pressing the Page selector near the top of the page. This displays a pop-up menu listing all the Data pages in the current file; you can choose columns from any or all of these. To enter a column into a formula, double-click on its listing or type the corresponding letter label into the formula.
Title bar	Displays the name of the destination page and the label of the destination column. You can move the dialog around the page by dragging the Title bar.

Creating a Formula

A formula is created using a combination of column references and operators.

You can enter column references into the formula by double-clicking on the column name in the Source Columns window or by typing in the column's letter label (A, B, C, etc.). To include a source column not on the same page as the destination column, you can use the double-click method after selecting the new page from the Page selector's pop-up menu. When entering two or more column references consecutively, you need to separate them with a comma.

Function references, also, are added to you formula by double clicking on or by typing. And, as with column references, you need to separate them with an operator when entering two or more consecutively.

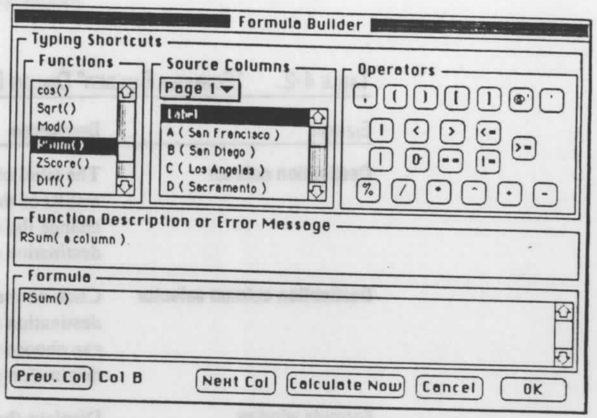
To create a formula:

1. **Open the Data page you want to use as your destination page.**
2. **Select a destination column for the results of the calculation.**
3. **Choose "Formula Builder..." from the Data menu, or double-click on the destination column's letter label.**

   The "Formula Builder" dialog appears.

   You can choose a different destination column once you are in the dialog by pressing the "Prev. Col" or "Next Col" buttons. The destination column changes at the bottom of the dialog to indicate the new destination column.
4. **Scroll through the list of functions in the Functions window and double-click to select the function you want to include in you formula.**

   The appropriate formula shell appears in the Formula window, and the function description appears directly above. The cursor appears between the parentheses.



RSum(a column)

RSum()

Col B

In the example above, which we will use to complete this step sequence, the Function Description window indicates that a column reference is required in the formula for the selected function, RSum.

5. **Double-click on the column you want the function to be performed on.**

   If you select column A, your formula will look like this: RSum (A). This indicates that you want a running sum performed on column A, with the calculations placed into column E (the destination column displayed in the Title bar).

Each function has its own formula, requiring different entries. Refer to the next section for information on all the functions within DeltaGraph.

6. **Click on "Calculate Now" when you've completed filling in your formula.**

If you make a mistake filling in the formula, DeltaGraph displays a warning dialog that explains what you need to do before the calculation can be completed.

If you fill in the formula correctly, the calculations appear in the destination column. How the calculations are displayed in the destination column depends on the function performed. You can move the dialog out of the way by dragging the Title bar.

Since the destination column is basically another column of data once the calculations are entered, you can plot it, or perform another function on it.

7. **Click "OK" to implement the changes and return to the Data page.**

If you want to exit the dialog without changing the Data page, click "Cancel."

Understanding DeltaGraph Functions Available

The following list of the functions you can apply automatically in DeltaGraph contains a brief explanation of what the named function does followed by the dialog description and guidelines for completing the function formula.

Areas of the function within brackets [ ], indicates an optional entry for the formula. Entries referring to a source column from a different page must be in the format: "page #:column letter," for example; **page 3:D**

Avg Writes the average of each row of numbers for two or more source columns into the corresponding cell in the destination column. Separate each column in the formula with a comma.

Avg(two or more columns or numbers)

Examples: Avg(a,b), Avg(a,b,c), Avg(5,14), etc.

TAvg Writes the average of the *total* of all the cells in the source column(s) into the first cell of the destination column. Separate each column in the formula with a comma.

TAvg(one or more columns or numbers)

Examples: TAvg(a,b), TAvg(a,b,c), TAvg(5,14), etc.

Diff Writes the difference between each source value and the one that follows it into the corresponding cell of the destination column.

Diff(a column)

Examples: Diff(a), Diff(b), etc.

Exp Writes the transcendental constant e (2.71828...) to the power of each value in the source column into the corresponding cell in the destination column.

Exp(a number or column)

Examples: Exp(9), Exp(a), etc.

Fill Generates and writes data starting with the value, time, or date you specify, incrementing by the value you specify, to fill the number of cells you specify in the destination column.

Fill(start, increment, count [, units])

Examples: Fill(0,5,10), Fill(0,100,10,#Rand),
Fill(@'Oct 19, 91',1,10,#Wk),
Fill(@'Oct 31, 91',2,10,#Mon), etc.

Filter Evaluates values in the source column, if they fall within parameters you specify, it outputs the corresponding value based on the second parameter.

Filter(logical exp, true values [, false values])

Examples: Filter(a<5,a), Filter(a≥10,b)

Freq Counts the number of times each value appears in the source column, then lists the frequency of each source value in the destination column. Bound specs are used to define the bin range and can be defined in a separate column on the Data page. Bins compare the source column to the defined bound spec and outputs the number of values which falls within each bin. Rounding flags are: 0=< (false) (default); and 1=≤ (true). If bound specs are used, the default rounding flag is "<" otherwise it is =.

Freq(a column [, bound spec [, rounding flag]])

Examples: Freq(a), Freq(a, b), Freq(a,b,1)

FreqL	Labels the bins used in a Freq function and places them in the destination column. If bound specs are not used, rounding flags will not be displayed. The formula used in a FreqL must be exactly the same as used in the Freq formula. FreqL(a column [, bound spec [, rounding flag]]) **Examples:** FreqL(a), FreqL(a, b), FreqL(a,b,1)
Ln	Writes the natural logarithm of each value in the source column into the corresponding cell in the destination column. Ln(a number or column) **Examples:** Ln(9), Ln(a), etc.
Log	Writes the base 10 logarithm of each value in the source column into the corresponding cell in the destination column. Log(a number or column) **Examples:** Log(9), Log(a), etc.
Median	Writes the median of each row of numbers for two or more source columns into the corresponding cell in the destination column. Separate each column in the formula with a comma. Median(two or more columns or numbers) **Examples:** Median(a,b), Median(a,b,c), Median(5,14), etc.
TMedian	Writes the median of the *total* of all the cells in the source column(s) into the first cell of the destination column. Separate each column in the formula with a comma. TMedian(one or more columns or numbers) **Examples:** TMedian(b), TMedian(a,b), TMedian(a,b,c), TMedian(5,14), etc.
Mod	Writes the remainder of the divide operation of the two parameters in the source column, into the corresponding cell in the destination column. Mod(a column, number or column) **Examples:** Mod(a,9), Mod(a,b), etc.
RSum	Creates a running sum all of the values in the source column, then writes the sum of each value and all values that precede it in the column into the corresponding cell of the destination column. RSum(a column) **Examples:** RSum(a), RSum(b), etc.
Smooth	Adds the current cell to a user-specified number of cells that follow it and writes the average into the corresponding cell of the destination column. Smooth(a column, smooth width) **Example:** Smooth(a, 7)
Std	Writes the standard deviation for each row in the source column(s) into the corresponding cell in the destination column. Separate each column in the formula with a comma. Std(two or more columns or numbers) **Examples:** Std(a,b), Std(a,b,c), Std(5,14), etc.
TStd	Writes the *total* standard deviation of all the cells in the source column(s) into the first cell of the destination column. Separate each column in the formula with a comma. TStd(one or more columns or numbers) **Examples:** TStd(b), TStd(a,b), TStd(a,b,c), TStd(5,14), etc.
Sqrt	Writes the square root of each value in the source column into the corresponding cell in the destination column. Sqrt(a number or column) **Examples:** Sqrt(9), Sqrt(a), etc.
Squash	Compressing all entries in the column by removing all blank data cells. Enter the column you want to compress. Squash (a column) **Examples:** Squash(c), Squash(a), etc.
ZScore	Determines the mean of all values in the source column, calculates the deviation of each source value from the mean, and writes the difference as a number of standard deviation units into the corresponding cell in the destination column. ZScore(a column) **Examples:** ZScore(a), ZScore(b), etc.

Trans Transcendental functions. All transcendentals are calculated in radians not degrees. Enters the function of each value in the source column into the corresponding cell in the destination column.

Transcendentals: sin, asin, sinh, asinh, cos, acos, cosh, acosh, tan, atan, tanh, atanh, cot, acot, coth, acoth, csc, acsc, csch, acsch, sec, asec, sech, asech.

Trans name(a number or column)

Examples: sin(9), cos(a), acos(b), etc.

Other You can also create other mathematical formulas for addition, subtraction, multiplication, division, and a combination of these.

Examples: a+b, a+b+c, a+b-c, a/c, a+b*c, etc.

To take the third, fourth, or nth root of a column or number enter A^(1/n) into the Formula window. With "n" being the power.

Examples: A^(1/3) for the cube root, or A^(1/8) for the 8th root, etc.

Creating a Histogram

You can create a histogram by first performing a FreqL function on the source column(s) (to act as the labels for the chart), perform a Freq function on the same source column(s) using a different destination column, then plotting a column chart using both of these destination columns.

To learn more about	refer to
Creating a Histogram	Appendix C, "Creating a Histogram"

Printing a Data Page

When you select "Print" from a Data page, DELTAGRAPH displays a dialog so you can make the necessary selection. In addition to the usual "Print" dialog option, you can specify whether you want Data page grid lines and/or row and column labels to print (the default) or not, when you click "OK." DELTAGRAPH prints all data on the current page, regardless of what is selected.

Refer to your printer manual for additional information.

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5 Organizing Data in a Text Page

This chapter explains how to enter, organize, and edit data in a Text page so you can create Organizational and Bullet charts with a few quick clicks of the mouse.

Before you begin, you will find it helpful to have a clear understanding of the information covered in Chapter 2, "Understanding DELTAGRAPH Concepts," especially the descriptions of the different types of data, the Notebook window icons, and the elements of a Text page.

This chapter covers:

- Creating, and opening Text pages
- Getting around in a Text page
- Entering data and adjusting the hierarchy
- Adding and deleting data entries
- Selecting text data
- Editing and formatting text
- Adjusting data hierarchy
- Revising and updating related charts
- Printing Text pages

Displaying a Text Page

Since most charts are plotted from a Data page, DELTAGRAPH displays a blank Data page the first time you boot the application. To display a blank Text page, as shown in Figure 5-1, press the Text Page icon at the top of the page and select "New Text Page" from the pop-up menu that appears. (Selecting "New Page" from the Data menu opens a new Text page only when chosen from another Text page; when opened from a Data page, it opens a new Data page.)

Although you can have an unlimited number of Text pages in a Notebook, you can have only one open at a time. To display a list of Text pages associated with the current file, press the Text Page icon at the top of the window; to open one of the pages, select it from the pop-up menu. (If you want to open a Data page instead, press the Data Page icon and make your selection.

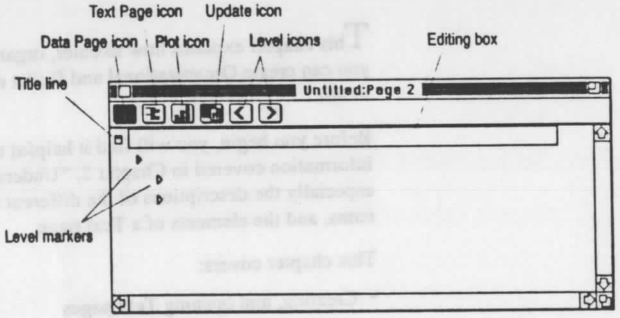


FIGURE 5-1. A TEXT PAGE

To learn more about	refer to
Naming and deleting pages	"The Notebook Window" in Chapter 2
Other Notebook window icons	"The Notebook Window" in Chapter 2
Setting up a Data page	Chapter 4, "Organizing Data in a Data Page"

Getting Around in a Text Page

The horizontal and vertical Scroll bars work in the standard manner. The different ways of moving from one entry to another are outlined in Table 5-1.

TABLE 5-1. MOVING THROUGH THE TEXT PAGE

KEY	MOVEMENT
Up-arrow	Moves the Editing box up the page one entry at a time.
Down-arrow	Moves the Editing box down the page one entry at a time.
Return	Creates a new entry directly below the current entry.
Shift–Return	Creates another line within the Editing box.
Click	Selects the entry under the mouse pointer.

Entering and Editing Your Data

Text page data is organized like an outline by levels of hierarchy (see Fig. 5-2). Each entry is preceded by a triangular Level marker. A black marker indicates that the entry has subordinate entries; a white marker indicates that the entry does not have any subordinate entries. You can have an unlimited number of entries and levels, depending on your system capabilities.

⊟ The first entry is called a Title line and its hierarchy cannot be changed. A Title line indicates the beginning of a new data set and serves as the title of the chart plotted from that data set. All entries left in this flush-left position are considered Title lines (unless you decide to change their hierarchy, which you can do at any time); all subordinate entries are considered part of the same data set.

The Editing box (see Fig. 5-1) is the only place on a Text page you can create and edit data entries. It starts out at the top of a new Text page, moving down the page each time you press Return after making an entry.

If you want to edit something after typing it in, click on the entry to select it and to display the Editing box, then proceed as you would in any word processor. You can also cut and paste data between Text pages to combine information from different sources.

To undo the most recent cut, copy, paste, or change of hierarchy, choose "Undo" from the Edit menu or type ⌘–Z.

To learn more about	refer to
Changing the level of data entries	"Adjusting the Hierarchy of a Text Page Entry" later in this chapter
Changing text attributes	"Formatting Text in a Text Page" later in this chapter
Commands in the Edit menu	"The Edit Menu" in Chapter 16

To enter data in a new Text page:

1. **If you are not already in a blank Text page, press the Text Page icon and select "New Text Page" from the hierarchical menu.**

   A new Text page appears in the Notebook window (see Fig. 5-1).

2. **Type your first entry in the Editing box at the top of the page.**

   The first entry cannot be indented or deleted. DELTAGRAPH treats this as the Title line for the data set that follows.

3. **Press Return to register the entry and move the Editing box down the page.**

   You can adjust the levels of hierarchy (described in the next section) as you work or after entering all your data.

4. **Repeat steps 2 and 3 until all data is entered.**

To insert entries in a Text page:

1. **Place the cursor directly above where you want the new entry.**

   The Editing box appears around the entry.

2. **Press Return or choose "Outline" from the Text menu and select "New Item" from the hierarchical menu.**

   A blank Editing box appears below the current entry at the same hierarchical level.

3. **Type in your new entry and adjust its level if necessary.**

To delete entries in a Text page:

1. **Click on the entry to be deleted.**

   The Editing box appears around the entry.

2. **Choose "Outline" from the Text menu and select "Remove Items" from the hierarchical menu.**

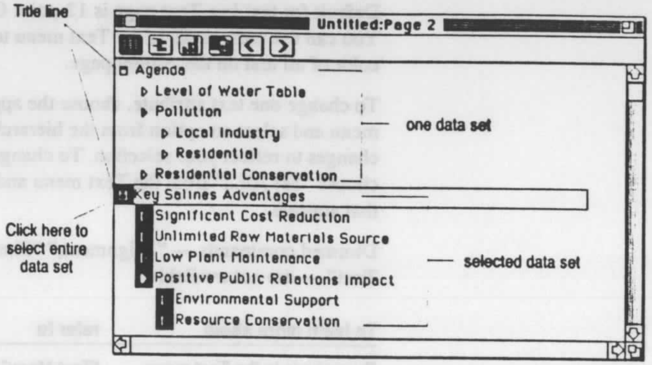
   The selected entry is deleted, along with all subordinate entries that comprise the data set.

Selecting Data

DELTAGRAPH uses only one data set per chart. If you have more than one data set entered on a Text page, you can select multiple data sets to plot multiple charts in the same Chart window.

To select a data set, click on the Title line icon. This selects the Title line and all subordinates up to the next Title line; only the selected entries are plotted (see Fig. 5-2). you can select single or multiple data sets. Hold down the Shift key when selecting adjacent or non-adjacent data sets within the Text page.

If you have only one data set on a page, or you just want to plot the first data set on the page, there is no need to select data; DELTAGRAPH plots the first data set automatically.



Agenda
- Level of Water Table
- Pollution
  - Local Industry
  - Residential
- Residential Conservation

Key Salines Advantages
- Significant Cost Reduction
- Unlimited Raw Materials Source
- Low Plant Maintenance
- Positive Public Relations Impact
  - Environmental Support
  - Resource Conservation

FIGURE 5-2. SELECTING DATA IN A TEXT PAGE

Adjusting the Hierarchy of a Text Page Entry

When adjusting the hierarchy of entries in a Text page, there are several thing to keep in mind: (1) the level of the first entry cannot be adjusted; (2) Title lines divide data sets for separate charts; (3) no entry can be moved more than one level to the right of the entry that precedes it; and (4) when you move an entry, all of its subordinates follow.

You can adjust the hierarchy of Text page entries in any of the following ways:

1. From anywhere in the Editing box, press:

⌘–R	to move an entry to the right.
⌘–L	to move an entry to the left.

2. Click on a Level marker and drag left or right to change the hierarchical level of the entry. You can also drag a selection up or down to change its order in the outline.

3. Position the I-beam at the beginning of the Editing box, then press:

"." or ">"	to move an entry to the right.
"," or "<"	to move an entry to the left.

4. From anywhere in the Editing box, choose "Outline" from the Text menu and select "Move Right" or "Move Left" from the hierarchical menu.

Formatting Text in a Text Page

Default for text in a Text page is 12-point Geneva, plain black, set flush left. You can use commands in the Text menu to change the font, size, style, and/or color of all text on the current page.

To change one text attribute, choose the appropriate command from the Text menu and select an option from the hierarchical menu. All text on the page changes to reflect your selection. To change several attributes at one time, choose "Set All..." from the Text menu and specify your changes in the dialog that appears.

Dimmed commands — "Alignment," "Shadow...," "Hidden," and "Special Text" — are not available.

To learn more about	refer to
Commands in the Text menu	"Text Menu" in Chapter 16

Revising Your Data and Updating Related Charts

Occasionally you may want to revise the data in a Text page then update one or more of the charts plotted from this data. To update *all* the charts associated with a page, make the necessary changes in the Text page, then press the Update icon at the top of the page or choose "Update" from the Data menu; all related charts are updated automatically.

To update just one particular chart, press the Revise icon above the Scroll bar in the Chart window or choose "Revise Data" from the Data menu after selecting the chart; this sends you back to the originating Text page where you make your changes then click a button to update the chart.

To learn more about	refer to
Updating all related charts	"Updating Your Charts" in Chapter 6
Revising one chart only	"Revising Chart Data" in Chapter 6

Printing a Text Page

When you select the "Print..." command from a Text page, DELTAGRAPH displays a typical print dialog so you can make the necessary selections. When you click "OK," DELTAGRAPH prints the selected page.

Refer to your printer manual for additional information.

6 Plotting Data

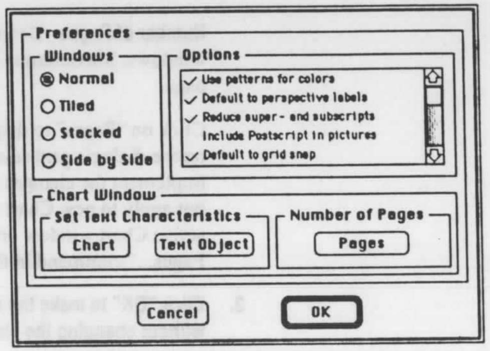
This chapter focuses on creating charts and working with Chart windows. It describes and illustrates each DELTAGRAPH chart and the type of data needed to create it. In addition, it explains how to set default preferences, revise data, and use the Internal Command Language to automate chart creating from another application or text string.

This chapter covers:

- Setting default preferences for your charts
- Understanding the DELTAGRAPH chart types and the sort of data they require
- Plotting your chart — step-by-step instructions
- Creating, deleting, and naming Chart windows
- Creating overlay and double-axis charts
- Plotting multiple charts in a Chart window
- Changing the type of chart in a Chart window
- Revising the data within a chart
- Using the Internal Command Language (ICL) to plot data

Setting Chart Default Preferences

Use "Preferences" in the Edit menu to set program defaults before plotting your charts. Most of the default preferences you can specify in this dialog affect charts and other objects in the Chart window. For the most part, selections do not affect existing windows; they apply to new windows only — in the current file, and ever other DELTAGRAPH file as well. Exceptions are noted when appropriate.



Preferences

Windows
- ● Normal
- ○ Tiled
- ○ Stacked
- ○ Side by Side

Options
- ✓ Use patterns for colors
- ✓ Default to perspective labels
- ✓ Reduce super - and subscripts
- Include Postscript in pictures
- ✓ Default to grid snap

Chart Window

Set Text Characteristics: Chart, Text Object

Number of Pages: Pages

To set default preferences:

1. **Choose "Preferences" from the Edit menu.**

   The "Preferences" dialog appears, with defaults set as shown below. A check mark or a highlighted button indicates the option is on.

2. **Make your selections and enter data as needed.**

   You have the following options:

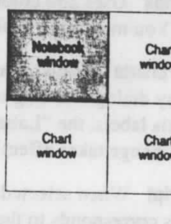
Windows Determines how the open windows are displayed on your screen. Applies to both Notebook and Chart windows. Selections do not take effect until the file (or another DELTAGRAPH file) is reopened. If you want to override the selected default and rearrange the windows for the current file temporarily, choose "Position" from the Windows menu and make you selection from the hierarchical menu.

Normal Displays the windows the way you left them the last time you closed the file. This is the program default.

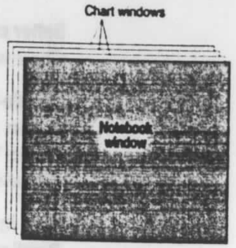
Tiled Sizes and arranges the open windows so they're all visible. Spaces are left for any Chart windows you close.

Stacked Stacks all open windows in the file with the most recently opened window on top.

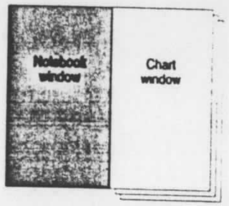
Side by Side Places the Notebook window on the left half of the screen and stacks all open Chart windows to the right.



TILED



STACKED



SIDE BY SIDE

Options Determines program-wide defaults for the Chart windows. Click on options to select/de-select them. A check mark next to an option indicates that it is on and will be considered a program default until you de-select it. Display additional options by clicking on the Scroll bar.

Use patterns for colors In chart and other objects — Uses patterns instead of colors when monitor setting in the Macintosh Control Panel is set to "Black and White." Used mostly for black-and-white monitors. Default is on. Change takes effect immediately.

Default to perspective labels In charts — Automatically displays all labels in perspective to the chart. Default is on.

To turn off perspective labels for selected charts only, use the "Options..." command in the Chart menu.

Reduce super- and subscripts In charts — Automatically reduces by 20% the font size of super- and subscripts created using the "Special Text" command in the Data page. Default; on.

Include PostScript in pictures In chart and other objects — Adds PostScript comments to PICT files. Default is off.

Default to grid snap When selected, all Chart window objects snap to the grid set by the "Rulers & Grids..." command in the Draw menu. Default is on.

You can override this default for the active Chart window only by selecting or de-selecting "Snap to Grid" in the "Rulers & Grids" dialog.

Black and white only Charts are plotted in black and white patterns and fills. Use with black-and-white output devices. Default is off.

Better color blends Uses 256 colors to create better color blends in the Chart window. You must have 8-bit color capability. Default is on.

Double-click on charts Allows you to double-click on various parts of a chart to display dialogs relating to that area; i.e., if you double-click on the Value axis labels, the "Labels" dialog for that axis appears. Default is off. Change takes effect immediately.

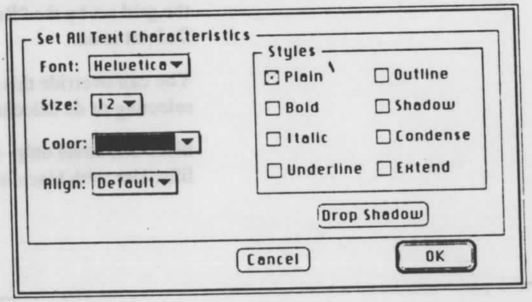
Print in PostScript When selected, all Chart window objects print in PostScript. This corresponds to the "Print Using: PostScript/QuickDraw" option in the "Print" dialog you see from the Chart window. This entry insures that PostScript is always selected (or de-selected). Default: off. Change takes effect immediately and applies to all DeltaGraph files.

Maximum print resolution When selected, prints QuickDraw output at the maximum resolution of your printer. When de-selected, resolution defaults to the resolution of the printer driver installed. Default; on.

Include background in pictures When selected, includes backgrounds when exporting objects from the Chart window or Slide Sorter window. If you create a background using the "Background" command from the Windows menu, and apply it to a Chart window, you can export all objects in the window plus the background used on that window. Only the background from the first page of the Chart window is exported.

Set Text Characteristics Sets program-wide defaults for text in Chart windows. Click "Chart" to set text attributes for all chart text (labels, axis titles, etc.); click "Text Object" to set text attributes for all Text objects. Both options display DeltaGraph's standard "Set All" dialog, with defaults set as shown below (unless they have been changed).

Use the pop-up menus and selection boxes to make your selections, then click "OK" to implement the changes and exit the dialog; changes take effect immediately but apply to new charts and Text objects only.


Set All Text Characteristics
Font: Helvetica
Size: 12
Align: Default
Styles: ● Plain

Number of Pages Determines the number of pages contained within all windows. Maximum is 10 pages by 10 pages per window; default is one page.

Click on "Pages" to display the "Select Number of Pages" dialog, then click on the dialog's grid squares to select/de-select pages. Click "OK" to implement the changes and exit the dialog; changes take effect immediately but apply to new Chart windows only. You can override this default for the active Chart window only by accessing this dialog through the "Number of Pages..." command in the Windows menu.

3. **Click "OK" to make the default changes, or click "Cancel" to exit the dialog without changing the chart.**

To learn more about	refer to
The "Set All" Command	"Text Menu" in Chapter 16

Understanding the Types of Charts

DeltaGraph's chart types fall into three main categories: 2-D, 3-D and Text charts. They are grouped by mor definitive categories within the "Plot" dialog. The charts listed in categories not specifically labeled 3-D or Text are 2-D charts.

2-D and 3-D charts, which are considered "numeric" charts even though some may contain textual data, are plotted from data entered in a Data page. Text charts are plotted from data entered in a Text page.

Numeric charts included in DeltaGraph can have as many as three different types of axes: a *Value axis*, which is generated and defined by the values of the data plotted; a *Category axis*, which displays the different categories of data you are plotting; and a *Series axis*, which is associated with the data series.

In DeltaGraph, most 2-D charts contain two axes and a legend. The vertical axis is the Y axis, and the horizontal axis is the X axis. One of the axes is alway a Value axis; the second axis can be a Category axis, a Series axis, or even another Value axis, depending on the type of chart.

3-D charts have three axes; X, Y, and Z. On all 3-D charts the Vertical axis is the Z axis and is always a Value axis. The function, name and placement of the X and Y axes is dependent on the type of chart.

As you will discover, many of the charts are exceptions to the rules just outlined. The rest of this section examines the charts in detail, explaining the purpose of each chart, how to set up your data, and how the data is converted into a chart. The charts are listed by category in the same order used in the "Plot" dialog.

To learn more about	refer to
The parts of a chart	"Basic Chart Elements" in Chapter 2
Entering data in a Data page	Chapter 4, "Organizing Data in a Data Page"
Entering data in a Text page	Chapter 5, "Organizing Data in a Text Page"
Modifying your charts	Chapter 7, "Customizing Your DELTAGRAPH Charts" and Chapter 8, "Using the Options..." Command

Column Charts

Stacked Column

Use a Stacked Column chart (see Fig. 6-1) to compare parts to the total, or to show how components of an item change over time.

Each row of data corresponds to a single segmented column in the chart (Category). Each column of data corresponds to the same shade or color in each of the columns in the chart. Each column segment represents a value in the Data page. The vertical or Y axis shows Values, the horizontal or X axis shows Categories. The Categories are stacked on top of one another, rather than placed side by side as in a regular Column chart.

Row labels are used to name each Category. Column labels are used to name each data series; these labels appear in the legend.

Column

Use a Column chart (see Fig. 6-1) to compare one item to another, or to compare different items over a period of time. Column charts effectively show large changes from one category to another.

Each row of data corresponds to one set of columns for a given category. Each column of data corresponds to a data series. Each column within a given category represents a value in the Data page. The vertical or Y axis shows Values, the horizontal or X axis shows Categories.

Row labels are used to name each Category. Column labels are used to name each data series; these labels appear in the legend.

Bar Charts

Stacked Bar

Use a Stacked Bar chart (see Fig. 6-1) to show how all categories in a series compare over time, or to compare parts to the total.

Each row of data corresponds to one segmented bar (Category). Each column of data corresponds to one segment of the bar in the chart. Each bar segment represents a value in the Data page. The vertical or Y axis shows Categories, the horizontal or X axis shows Values. The Categories are stacked on top of one another, rather than placed side by side as in a regular Bar chart.

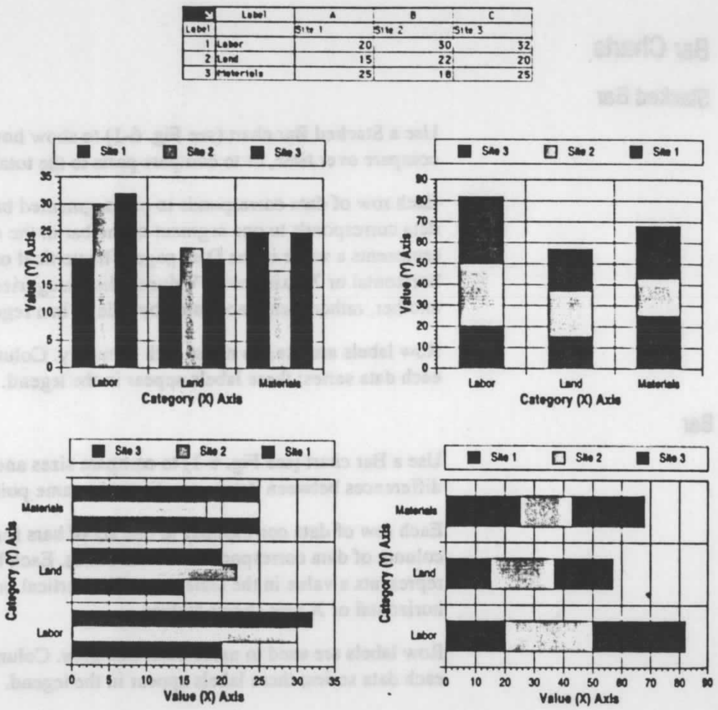
Row labels are used to name each Category. Column labels are used to name each data series; these labels appear in the legend.

Bar

Use a Bar chart (see Fig. 6-1) to compare sizes and amounts, or to emphasize differences between items, usually at the same point in time.

Each row of data corresponds to one set of bars for a given Category. Each column of data corresponds to a data series. Each bar within a given category represents a value in the Data page. The vertical or Y axis shows Categories, the horizontal or X axis shows Values.

Row labels are used to name each Category. Column labels are used to name each data series; these labels appear in the legend.



↘	Label	A	B	C
Label		Site 1	Site 2	Site 3
1	Labor	20	30	32
2	Land	15	22	20
3	Materials	25	18	25

FIGURE 6-1. COLUMN, STACKED COLUMN, BAR, AND STACKED BAR CHARTS

Line Charts

High-Low

Use a High-Low chart (see Fig. 6-2) to show the highs and lows for different items or different periods of time.

Two columns of data are required for each data series: the first column is used for the high point, and the second is used for the low point. You can have more than one series per Data page, but remember that the first column is for high values and the second column is for low. The vertical or Y axis shows Values, the horizontal or X axis shows Categories.

Row labels are used to name each Category. Enter a label in the first column of each series to name the data series: these labels appear in the legend.

To learn more about	refer to
Changing symbol shape and color	"Changing Chart Symbols" in Chapter 7

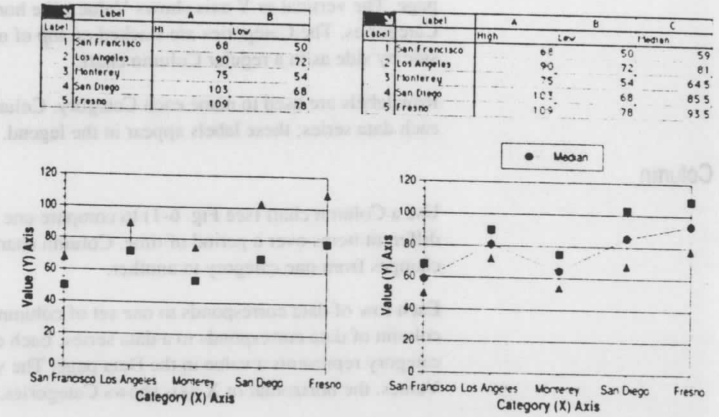
Range

A Range chart (see Fig. 6-2) shows the highs and lows of an item, as well as the midpoints between the two. You can make these comparisons over time.

Three columns of data are required for each data series: the first two columns produce values for the high and low points: the third column produces values for the midpoints. You can have more than one series per Data page. The vertical or Y axis shows Values, the horizontal or X axis shows Categories.

Row labels are used to name each Category. Enter a label in the first column of each series to name the data series: these labels appear in the legend.

To learn more about	refer to
Changing symbol shape and color	"Changing Chart Symbols" in Chapter 7



↘	Label	A	B
Label		Hi	Low
1	San Francisco	68	50
2	Los Angeles	90	72
3	Monterey	75	54
4	San Diego	103	68
5	Fresno	109	78

↘	Label	A	B	C
Label		High	Low	Median
1	San Francisco	68	50	59
2	Los Angeles	90	72	81
3	Monterey	75	54	64.5
4	San Diego	103	68	85.5
5	Fresno	109	78	93.5

FIGURE 6-2. HIGH-LOW AND RANGE CHARTS

Line

Use a Line chart (see Fig. 6-3) to show the trend of one or more items over a period of time. Line charts are best for plotting a long series of data points.

Each column of data corresponds to one line or series in the chart. You can have more than one series per Data page. The vertical or Y axis shows Values, the horizontal or X axis shows Categories.

Row labels are used to name each Category. Column labels are used to name each data series: these labels appear in the legend.

To learn more about	refer to
Changing symbol shape and color	"Changing Chart Symbols" in Chapter 7

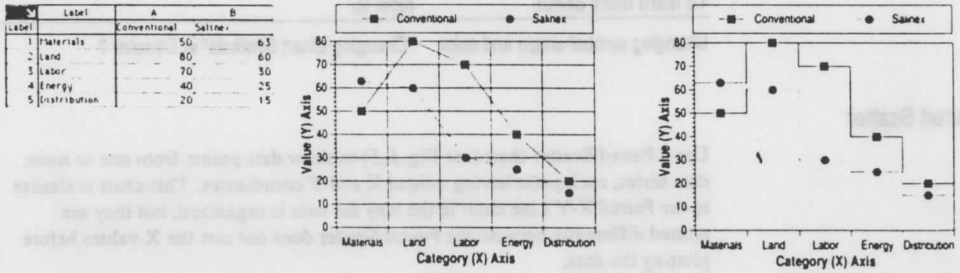
Step

Use a Step chart (see Fig. 6-3) to compare items that do not show a trend. Step charts display discrete points along the Value axis, with vertical lines showing the difference between each point.

Each column of data corresponds to one series of steps (or a data series) on the chart. You can have more than one series per Data page. The vertical or Y axis shows Values, the horizontal or X axis shows Categories.

Row labels are used to name each Category. Column labels are used to name each data series, this label appears in the legend.

To learn more about	refer to
Changing symbol shape and color	"Changing Chart Symbols" in Chapter 7



	Label	A	B
Label		Conventional	Salinex
1	Materials	50	63
2	Land	80	60
3	Labor	70	30
4	Energy	40	25
5	Distribution	20	15

FIGURE 6-3. LINE AND STEP CHARTS

Scatter Charts

X-Y Line

Use an X-Y Line chart (see Fig. 6-4) to show a comparison of one or more data series, each having the same X coordinate and unique Y coordinates. This chart is similar to the Scatter chart in the way the data is organized, but they are plotted differently because the X-Y Line sorts the X values from left to right before plotting the data.

X-Y Line produces a line chart in which both the vertical or Y axis and the horizontal or X axis measure Values. This differs from a Line chart where the X axis is a Category axis. The X-Y Line allows you to use unevenly spaced data increments in the X axis.

Each data series consists of two coordinates. The first coordinate (X), which is the same for all series, represents the first column of data. The second coordinate (Y), which differs for each series, represents on the remaining columns of selected data. For each data series in the chart, a line is drawn that corresponds to two coordinate data points.

The number of rows determines how many points are in a data series.

To label each data series of an X-Y Line chart, enter labels over each column of Y coordinates in the Data page; these labels appear in the chart legend. Because the X-Y Line chart uses values on both the vertical and the horizontal axes, there are no Category axis labels.

If your X coordinate column is not physically located at the beginning of your data, you can select nonadjacent columns of data by selecting the column you want for your X coordinate first and then holding down the Command key (⌘) and choosing the data you want for your Y coordinates.

Note: If your X coordinate data is not in sorted order, DELTAGRAPH sorts the data internally so that the chart draws a line from the point with the lowest X coordinate to the highest. Your actual data is not changed in the Data page. If you want your data to remain unsorted, you can use a Scatter chart and turn on "Connect Data Points" in the "Options" dialog.

Scatter

Use a Scatter chart (see Fig. 6-4) to show data points from one or more data series, each point having the same X coordinate and unique Y coordinates. This chart is similar to the X-Y Line chart in the way the data is organized, but they are plotted differently because the Scatter does not sort the X values plotting the data. The number of rows determines how many points are in a data series.

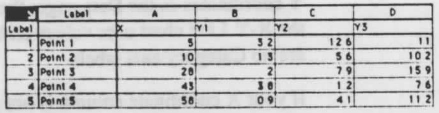
Scatter produces a scatter plot in which both the vertical or Y axis and the horizontal or X axis measure Values. Each data series consists of two coordinates. The first coordinate (X), which is the same for all series, represents the first column of data. The second coordinate (Y), which differs for each series, represents on the remaining columns of selected data. For each Series in the char, symbols are drawn that correspond to two coordinate data points.

The number of rows determines how many points are in a data series.

To label each data series of a Scatter chart, enter labels over each column of Y coordinates within the Data page; these labels appear in the chart legend. Because the Scatter chart uses values on both the vertical and the horizontal axes, there are no Category axis labels.

If your X coordinate column is not physically located at the beginning of your data, you can select nonadjacent columns of data by selecting the column you want for your X coordinate first and then holding down the Command key (⌘) and choosing the data you want for your Y coordinates.

To learn more about	refer to
Changing symbol shape and color	"Changing Chart Symbols" in Chapter 7



	Label	A	B	C	D
Label		X	Y1	Y2	Y3
1	Point 1	5	3.2	12.6	11
2	Point 2	10	1.3	5.6	10.2
3	Point 3	28	2	7.9	15.9
4	Point 4	43	3.8	1.2	7.6
5	Point 5	58	0.9	4.1	11.2

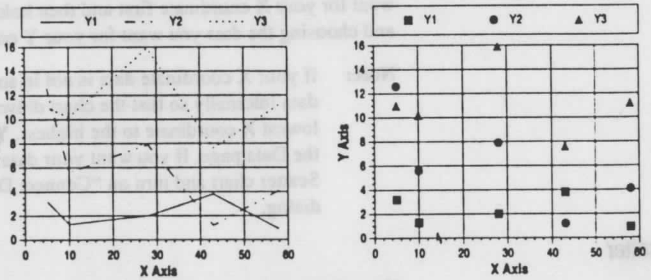


FIGURE 6-4. X-Y LINE AND SCATTER CHARTS

Paired X-Y Line

Use a Paired X-Y Line chart (see Fig. 6-5) to show sorted data points from one or more data series, each having a unique X and Y coordinate. "Paired" refers to how the chart interprets the data that makes up each series of X and Y coordinates.

This chart type looks an X-Y Line, but is uses a different type of data. And it is similar to the Paired Scatter chart in the way the data is organized, but they are plotted differently because the Paired X-Y Line sorts the X values from left to right before plotting the data.

In the Paired X-Y Line, data is arranged in paired columns of coordinate points that make up each data series. Each data series has two columns of data. The first column produces the X coordinate of the point, the second column produces the Y coordinate of the point. A line is drawn connecting the points in the series. This allows you to plot data points that have different X and Y coordinates for each data series.

The number of rows determines how many points are in a data series.

To label each data series of a Paired X-Y Line chart, enter labels over each column of X coordinates in the Data page; these labels appear in the chart legend. Because the Paired X-Y Line chart uses values on both the vertical and the horizontal axes, there are no Category axis labels.

Note: If your X coordinate data is not in sorted order, DELTAGRAPH sorts the data internally so that the chart draws a line from the point with the lowest X coordinate to the highest. Your actual data does not change in the Data page. If you want your data to remain unsorted, you can use a Paired Scatter chart and turn on "Connect Data Points" in the "Options" dialog.

To learn more about	refer to
Changing symbol shape and color	"Changing Chart Symbols" in Chapter 7

Paired Scatter

Use a Paired Scatter chart (see Fig. 6-5) to show data points from one or more data series, each point having unique X and Y coordinates. This chart is similar to the Paired X-Y Line chart in the way the data is organized, but they are plotted differently because the Paired Scatter does not sort the X values before plotting the data.

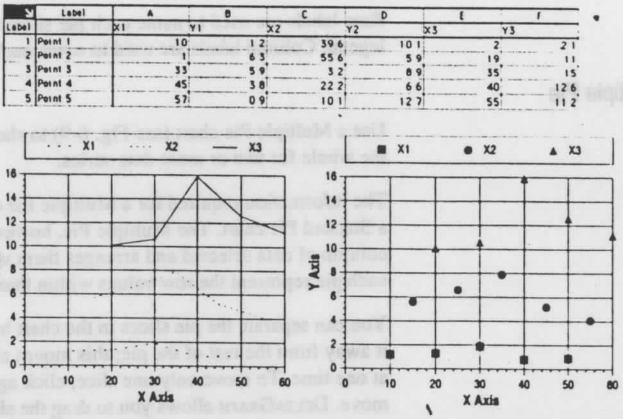
"Paired" refers to how the chart interprets the data that makes up each series of X and Y coordinates.

In the Paired Scatter chart, data is arranged in paired columns of coordinate points that make up each data series. Each data series has two columns of data. The first column produces the X coordinate of the point, the second column produces the Y coordinate of the point. A data symbol is plotted at the points with the specified X and Y coordinates. This allows you to plot data points that have different X and Y coordinates for each data series.

The number of rows determines how many points are in a data series.

To label each data series of a Paired Scatter chart, enter labels over each column of X coordinates in the Data page; these labels appear in the chart legend. Because the Paired Scatter chart uses values on both the vertical and the horizontal axes, there are no Category axis labels.

To learn more about	refer to
Changing symbol shape and color	"Changing Chart Symbols" in Chapter 7



↘	Label	A	B	C	D	E	F
Label		X1	Y1	X2	Y2	X3	Y3
1	Point 1	10	1.2	39.6	10.1	2	2.1
2	Point 2	1	6.3	55.6	5.9	19	11
3	Point 3	33	5.9	3.2	8.9	35	15
4	Point 4	45	3.8	22.2	6.6	40	12.6
5	Point 5	57	0.9	10.1	12.7	55	11.2

FIGURE 6-5. PAIRED X-Y LINE AND PAIRED SCATTER CHARTS

Bubble

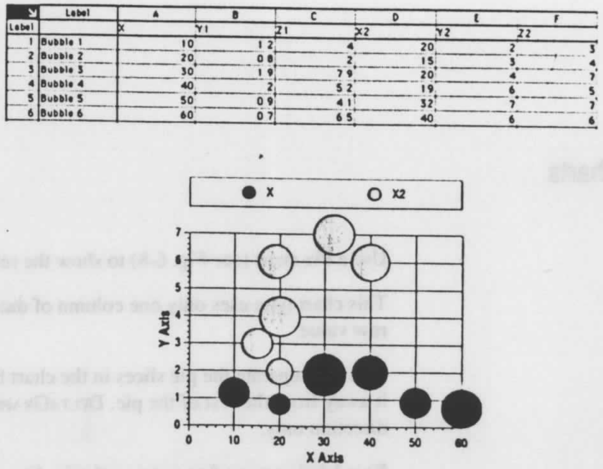
A Bubble chart (see Fig. 6-6) shows a visual comparison using three coordinates.

In a Bubble chart, each data series requires three columns of data: the first column produces the values for the X coordinate points; the second column produces the Y coordinate points; and the third column determines the size of the bubbles. Each data point represents a measurement that is the intersection of two values in a row and the visual size of a bubble.

All the coordinates entered in a Bubble chart measure values; therefore, the vertical or Y axis and the horizontal or X axis both show Values.

To label each data series, enter labels over each column of X coordinates in the Data page; these labels appear in the chart legend. A separate value legend provides a scale for the bubble size. This legend can be modified using the "Options..." command in the Chart menu.

To ensure that you do not have bubbles covering each other, change the fill of all the bubbles to "None."



↘	Label	A	B	C	D	E	F
Label		X	Y1	Z1	X2	Y2	Z2
1	Bubble 1	10	1.2	4	20	2	3
2	Bubble 2	20	0.8	2	15	3	4
3	Bubble 3	30	1.9	7.9	20	4	7
4	Bubble 4	40	2	5.2	19	6	5
5	Bubble 5	50	0.9	4.1	32	7	7
6	Bubble 6	60	0.7	6.5	40	6	6

FIGURE 6-6. BUBBLE CHART

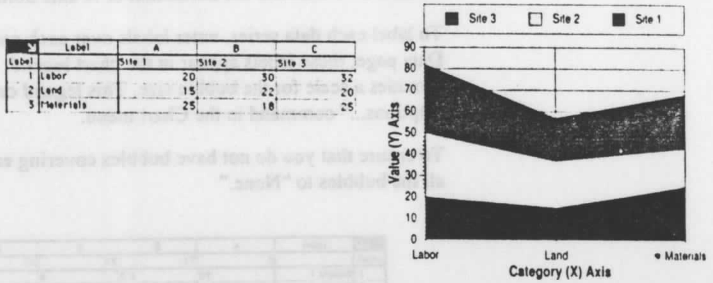
Area Charts

Area

Use an Area chart (see Fig. 6-7) to emphasize the volume or size of a data series, frequently over time.

Each column of data corresponds to a data series or a filled area on the chart. The vertical or Y axis shows Values, the horizontal or X axis shows Categories.

Row labels are used to name each Category. Column labels are used to name each data series in the legend.



↘	Label	A	B	C
Label		Site 1	Site 2	Site 3
1	Labor	20	30	32
2	Land	15	22	20
3	Materials	25	18	25

FIGURE 6-7. AREA CHART

Pie Charts

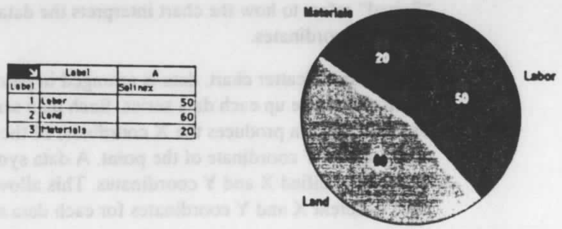
Pie

Use a Pie chart (see Fig. 6-8) to show the relationship of parts to the whole.

This chart type uses only one column of data. Each wedge of the pie represents a row value.

You can separate the pie slices in the chart by clicking on a wedge and dragging it away from the rest of the pie. DELTAGRAPH allows you to drag a slice in one direction only.

Row labels are used to name each pie slice, these labels also appear in the legend. Column labels are not used in the chart.



↘	Label	A
Label		Selinex
1	Labor	50
2	Land	60
3	Materials	20

FIGURE 6-8. PIE CHART

Stacked Pie

Use a Stacked Pie chart (see Fig. 6-9) to show the relationship of the parts to the whole for two or more data series.

The information required for a Stacked Pie chart is identical to that required for a Multiple Pie chart. The Stacked Pie, however, plots a separate pie for each column of data selected and stacks them on top of each other; the wedges of each pie represent the row values within that column.

Row labels are used to name each pie slice; these labels also appear in the legend. Column labels are used to name each pie.

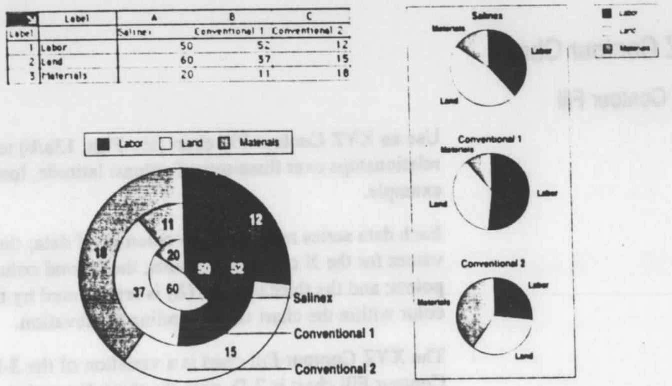
Multiple Pie

Use a Multiple Pie chart (see Fig. 6-9) to show the relationship of the parts to the whole for two or more data series.

The information required for a Multiple Pie chart is identical to that required for a Stacked Pie chart. The Multiple Pie, however, plots a separate pie for each column of data selected and arranges them without stacking them; the wedges of each pie represent the row values within that column.

You can separate the pie slices in the chart by clicking on a wedge and dragging it away from the rest of the pie; this moves all the wedges of the same category at one time. To move only one slice, click again on the wedge you want to move. DELTAGRAPH allows you to drag the slices in one direction only.

Row labels are used to name each pie slice. Column labels are used to name each pie, these labels also appear in the legend.



Label	Label	A	B	C
Label		Salinex	Conventional 1	Conventional 2
1	Labor	50	52	12
2	Land	60	37	15
3	Materials	20	11	18

FIGURE 6-9. STACKED PIE AND MULTIPLE CHARTS

Text Charts

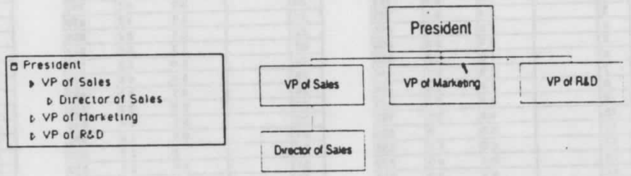
The two Text charts are the only DELTAGRAPH charts that use the Text page from the Notebook window.

Organizational

Use an Organizational chart (see Fig. 6-10) to show hierarchy.

Enter data into the Text page and organize it as needed. The Title line provides the initial starting point for the chart. The "Options..." dialog for this chart give you lots of alternatives for arranging the data once it is plotted

To learn more about	refer to
Organizing data in a Text page	"Adjusting the Hierarchy of a Text Page Entry" in Chapter 5



□ President
- ▶ VP of Sales
  - ▷ Director of Sales
- ▷ VP of Marketing
- ▷ VP of R&D

FIGURE 6-10. ORGANIZATIONAL CHART

Bullet

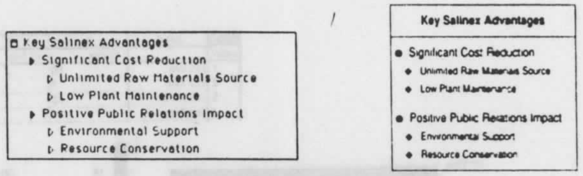
Use a Bullet chart (see Fig. 6-11) to show a subject outline for points of discussion.

Enter data into the Text page and organize it as an outline. The Title line provides the chart title, which is optional in a Bullet chart.

Elements of a Bullet chart — the bullets and/or the text entries — can be selected separating or in various combinations. Once selected, you can drag bullets (or text entries) horizontally to increase or decrease the gutter space between the bullets and the text or vertically to modify the spacing between entries or levels within the chart.

You can also change the size, shape, and color of selected bullets in the "Symbols" dialog.

To learn more about	refer to
Changing hierarchical levels in a Text page	Chapter 5 "Organizing Data in a Text Page"
Selecting chart elements	"Selecting Parts of a Chart" in Chapter 7
Changing symbol shape and color	"Changing Chart Symbols" in Chapter 7



□ Key Salinex Advantages
- ▶ Significant Cost Reduction
  - ▷ Unlimited Raw Materials Source
  - ▷ Low Plant Maintenance
- ▶ Positive Public Relations Impact
  - ▷ Environmental Support
  - ▷ Resource Conservation

Key Salinex Advantages
● Significant Cost Reduction
◆ Unlimited Raw Materials Source
◆ Low Plant Maintenance
● Positive Public Relations Impact
◆ Environmental Support
◆ Resource Conservation

FIGURE 6-11. BULLET CHART

Contour Charts

Contour Fill

Use a Contour Fill chart (see Fig. 6-12) to show surface variation based on two set evenly spaced values (such as latitude and longitude at 10° intervals) – which can be entered as row and category labels; and a unique number (such as elevation at a given point).

The Contour Fill chart is a variation of the Contour Line and 3-D Surface Line/ Fill charts. Contour Fill does not have a Value axis; the values are shown as a variation in pattern or color and are represented in the legend instead.

You must have a least two columns and two rows of data in a Contour Fill chart. The vertical or Y axis shows the Category, the horizontal or X axis shows the Series.

Each row of data corresponds to a Category. Each column of data corresponds to a Series. Each value in the Data page is represented at the intersection of the Category and Series points.

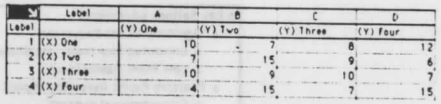
Row labels are used to name each Category on the Y axis. Column labels are used to name each Series on the X axis.

Contour Line

The Contour Line chart is a variation of the Contour Fill and 3-D Surface Line/Fill charts. Contour Line does not have a Value axis; the values are shown as a series of lines and numbers within the chart instead.

You must have at least two columns and two rows of data in a Contour Line chart. The vertical or Y axis shows the Category, the horizontal or X axis shows the Series. Each row of data corresponds to a Category. Each column of data corresponds to a Series. Each value in the Data page is represented at the intersection of the Category and Series points.

Row labels are used to name each Category on the Y axis. Column labels are used to name each Series on the X axis.



	Label	A	B	C	D
Label		(Y) One	(Y) Two	(Y) Three	(Y) Four
1	(X) One	10	7	8	12
2	(X) Two	7	15	9	6
3	(X) Three	10	9	10	7
4	(X) Four	4	15	7	15

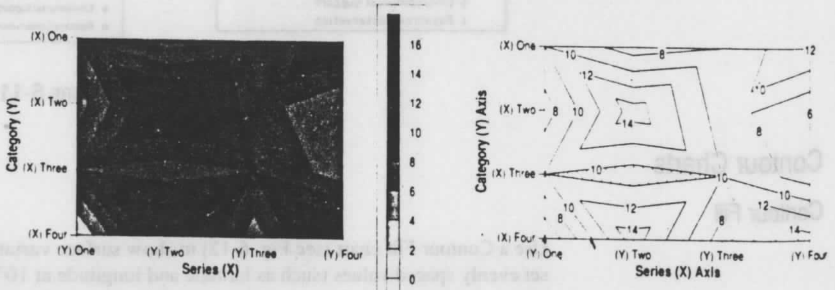


FIGURE 6-12. CONTOUR FILL AND CONTOUR LINE CHARTS

XYZ Contour Charts

XYZ Contour Fill

Use an XYZ Contour Fill chart (see Figs. 13a/b) to show variations and relationships over three sets of values: latitude, longitude, and elevation, for example.

Each data series requires three columns of data; the first column produces the values for the X coordinate points; the second column produces the Y coordinate points; and the third column (Z) is represented by the legend and the patterns or color within the chart corresponding to elevation.

The XYZ Contour Fill chart is a variation of the 3-D Surface chart. The XYZ Contour Fill chart is 2-D, with the third dimension of values shown as a variation in pattern or color.

Labels are not used on an XYZ Contour Fill chart.

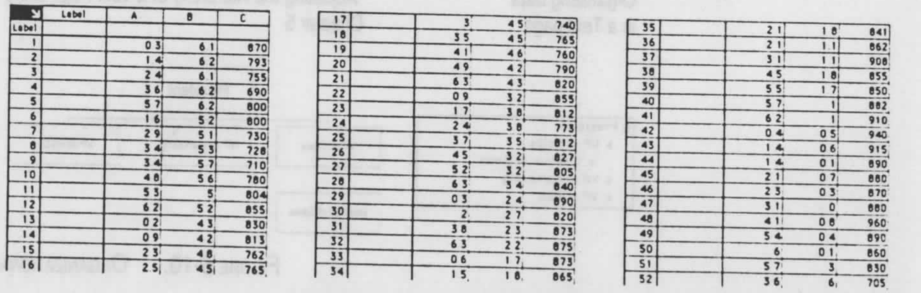
XYZ Contour Line

Use an XYZ Contour Line chart (see Figs. 13a/b) to show variations and relationships over three sets of values: latitude, longitude, and elevation, for example.

Each data series requires three columns of data; the first column produces the values for the X coordinate points; the second column produces the Y coordinate points; and the third column (Z) represents an elevation.

The XYZ Contour Line chart is a variation of the XYZ Contour Fill chart. The XYZ Contour Line chart is 2-D, with the third dimension of values shown as an annotated elevation on the chart.

An XYZ Contour Line chart does not require labels or a legend.



	Label	A	B	C
Label				
1		0 3	6 1	870
2		1 4	6 2	793
3		2 4	6 1	755
4		3 6	6 2	690
5		5 7	6 2	800
6		1 6	5 2	800
7		2 9	5 1	730
8		3 4	5 3	728
9		3 4	5 7	710
10		4 8	5 6	780
11		5 3	5	804
12		6 2	5 2	855
13		0 2	4 3	830
14		0 9	4 2	813
15		2 3	4 8	762
16		2.5	4 5	765
17		3	4 5	740
18		3 5	4 5	765
19		4 1	4 6	760
20		4 9	4 2	790
21		6 3	4 3	820
22		0 9	3 2	855
23		1 7	3 8	812
24		2 4	3 8	773
25		3 7	3 5	812
26		4 5	3 2	827
27		5 2	3 2	805
28		6 3	3 4	840
29		0 3	2 4	890
30		2	2 7	820
31		3 8	2 3	873
32		6 3	2 2	875
33		0 6	1 7	873
34		1 5	1 8	865
35		2 1	1 8	841
36		2 1	1 1	862
37		3 1	1 1	908
38		4 5	1 8	855
39		5 5	1 7	850
40		5 7	1	882
41		6 2	1	910
42		0 4	0 5	940
43		1 4	0 6	915
44		1 4	0 1	890
45		2 1	0 7	880
46		2 3	0 3	870
47		3 1	0	880
48		4 1	0 8	960
49		5 4	0 4	890
50		6	0 1	860
51		5 7	3	830
52		3 6	6	705

FIGURE 6-13A. XYZ CONTOUR FILL AND XYZ CONTOUR LINE CHARTS

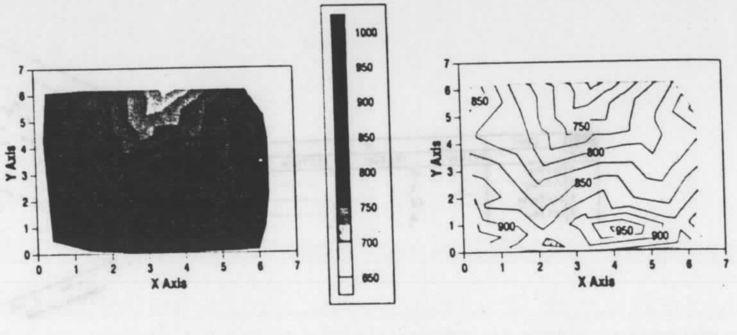


FIGURE 6-13B.   XYZ CONTOUR FILL AND XYZ CONTOUR LINE CHARTS

3-D Charts

3-D Ribbon

Use a 3-D Ribbon chart (fig. 6-14) to show trends.

The 3-D Ribbon chart is a variation of a 2-D Line chart. Each column of data corresponds to one ribbon or data series on the chart. You can have more than one series per Data page. The right or X axis shows Categories, the left or Y axis shows the Series, and the vertical or Z axis shows Values.

Note: On a 3-D chart, the axes are the three lines that intersect in the back of the chart. They are not the lines where the axis labels appear.

Row labels are used to name each Category. Column labels are used to name each Series.

3-D Area

Use an Area chart (see Fig. 6-14) to emphasize the volume or size of a data series, frequently over time. This chart is a variation of a 2-D Line or Area chart.

Each column of data corresponds to a data series or a filled area on the chart. The right or X axis shows Categories, the left or Y axis shows the Series, and the vertical or Z axis shows Values.

Note: On a 3-D chart, the axes are the three lines that intersect in the back of the chart. They are not the lines where the axis labels appear.

Row labels are used to name each Category. Column labels are used to name each Series.

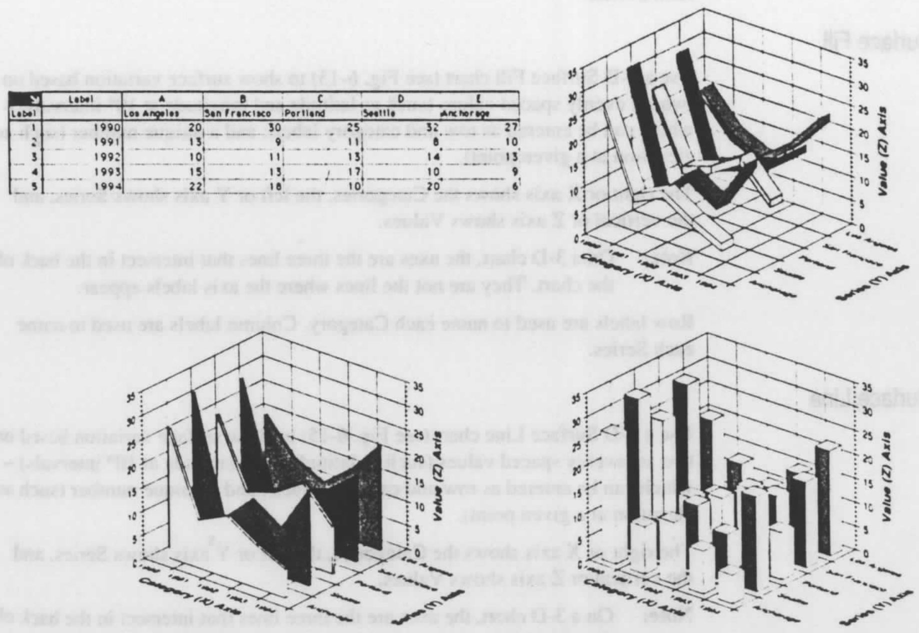
3-D Column

The 3-D Column chart (see Fig. 14) is a variation of a 2-D Column chart. Use it to compare one item to another, or to compare different items over a period of time. Column charts effectively show large changes from one category to another.

Each row of data corresponds to one set of bars for a given Category. Each column of data corresponds to a data series. Each value in the Data page represents one column within a given category. The right or X axis shows Categories, the left or Y axis shows the Series, and the vertical or Z axis shows Values.

Note: On a 3-D chart, the axes are the three lines that intersect in the back of the chart. They are not the lines where the axis labels appear.

Row labels are used to name each Category. Column labels are used to name each Series.



↘	Label	A	B	C	D	E
Label		Los Angeles	San Francisco	Portland	Seattle	Anchorage
1	1990	20	30	25	32	27
2	1991	13	9	11	8	10
3	1992	10	11	13	14	13
4	1993	15	13	17	10	9
5	1994	22	18	10	20	6

FIGURE 6-14.   3-D RIBBON, AREA, AND COLUMN CHARTS

3-D Surface Charts

3-D Wireframe

The 3-D Wireframe chart (see Fig. 6-15) is a variation of a Contour chart. Use a 3-D Wireframe chart to show surface variation based on two set evenly spaced values (such as latitude and longitude at 10° intervals) – which can be entered as row and category labels; and a unique number (such as elevation at a given point). A Wireframe is suitable for showing three-dimensional changes in an object or over time.

The right or X axis shows Categories, the left or Y axis shows the Series, and the vertical or Z axis shows Values.

Note: On a 3-D chart the axes are the three lines that intersect in the back of the chart. They are not the lines where the axis labels appear.

Row labels are used to name each Category. Column labels are used to name each Series.

3-D Surface Fill

Use a 3-D Surface Fill chart (see Fig. 6-15) to show surface variation based on two set evenly spaced values (such as latitude and longitude at 10° intervals) – which can be entered as row and category labels; and a unique number (such as elevation at a given point).

The right or X axis shows the Categories, the left or Y axis shows Series, and the vertical or Z axis shows Values.

Note: On a 3-D chart, the axes are the three lines that intersect in the back of the chart. They are not the lines where the axis labels appear.

Row labels are used to name each Category. Column labels are used to name each Series.

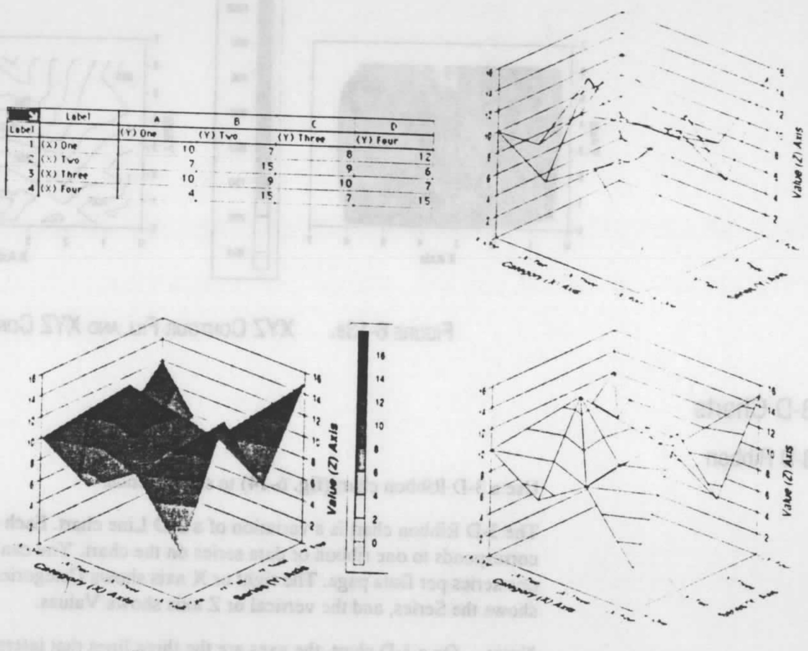
3-D Surface Line

Use a 3-D Surface Line chart (see Fig. 6-15) to show surface variation based on two set evenly spaced values (such as latitude and longitude at 10° intervals) – which can be entered as row and category labels; and a unique number (such as elevation at a given point).

The right or X axis shows the Categories, the left or Y axis shows Series, and the vertical or Z axis shows Values.

Note: On a 3-D chart, the axes are the three lines that intersect in the back of the chart. They are not the lines where the axis labels appear.

Row labels are used to name each Category. Column labels are used to name each Series.



	Label	A	B	C	D
Label		(Y) One	(Y) Two	(Y) Three	(Y) Four
1	(X) One	10	7	8	12
2	(X) Two	7	15	9	6
3	(X) Three	10	9	10	7
4	(X) Four	4	15	7	15

FIGURE 6-15. 3-D WIREFRAME, SURFACE FILL, AND SURFACE LINE CHARTS

3-D XYZ Charts

3-D Scatter

The 3-D Scatter chart (see Fig. 6-16) plots data points created by the intersection of three different coordinate values. Those points are connected to one of the chart planes with a drop line. Each of the three values that make up a point corresponds to a particular axis in a 3-D grid. The left axis is X, the right axis is Y, and the vertical axis is Z.

Note: On a 3-D chart, the axes are the three lines that intersect in the back of the chart. They are not the lines where the axis labels appear.

All of the axes on a 3-D Scatter chart measure values: the frequency, amplitude, and phase of an electrical signal, for example.

Each data series requires three columns of data: the first column produces the values for the X coordinate points; the second column produces the Y coordinate points; and the third column produces the Z coordinate points. Each data point represents a measurement that is the intersection of the three values in a row. You can have more than one data series per Data page.

Each data series in a 3-D Scatter chart is represented by a different set of symbols with drop lines to one of the three chart planes. To label each data series, enter labels over the first column of each series in a Data page.

To learn more about	refer to
Changing symbol shape and color	"Changing Chart Symbols" in Chapter 7

3-D Scatterline

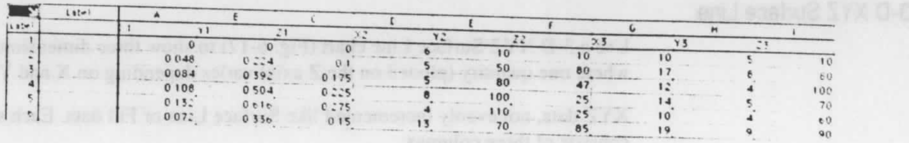
The 3-D Scatterline chart (see Fig. 6.16) is a variation of the 3-D Scatter chart, except that it connects the data points by a line, as in "connect-the-dots." This chart measures something that moves in space as a function of time: a satellite orbiting earth, for example. The chart shows a path of contact points along an implied time line represented by the position of the points along the line.

All of the axes on a 3-D Scatterline chart measure Values. The left axis is X, the right axis is Y, and the vertical axis is Z.

Note: On a 3-D chart the axes are the three lines that intersect in the back of the chart. They are not the lines where the axis labels appear.

Each data series requires three columns of data: the first column produces the values for the X coordinate points; the second column produces the Y coordinate points; and the third column produces the Z coordinate points. Each data point represents a measurement that is the intersection of the three values in a row.

Each data series in a 3-D Scatterline chart is represented by a continuous line. To label each data series, enter labels over the first column of each series in a Data page.



Label	A	B	C	D	E	F	G	H	I
Label	X1	Y1	Z1	X2	Y2	Z2	X3	Y3	Z3
1	0	0	0	6	10	10	10	5	10
2	0.048	0.224	0.1	5	50	80	17	6	60
3	0.084	0.392	0.175	5	80	47	12	4	100
4	0.108	0.504	0.225	8	100	25	14	5	70
5	0.132	0.616	0.275	4	110	25	10	4	60
6	0.072	0.336	0.15	13	70	85	19	9	90

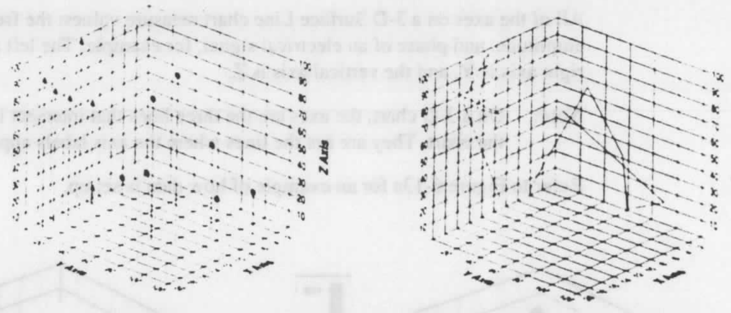


FIGURE 6-16. 3-D SCATTER AND SCATTERLINE CHARTS

3-D XYZ Surface Fill

Use a 3-D XYZ Surface Fill chart (see Fig. 6-17) to show three dimensional data where one quantity (plotted on the Z axis) varies depending on X and Y values. XYZ data, not evenly incremented like Surface Line or Fill data.

All of the axes on a 3-D XYZ Surface Fill chart measure values: the frequency, amplitude, and phase of an electrical signal, for example. The left axis is X, the right axis is Y, and the vertical axis is Z.

Note: On a 3-D chart, the axes are the three lines that intersect in the back of the chart. They are not the lines where the axis labels appear.

Each data series requires three columns of data:, the first column produces the values for the X coordinate points; the second column produces the Y coordinate points; and the third column produces the Z coordinate points. Each data point represents a measurement that is the intersection of the three values in a row.

To label each data series, enter labels the first column of each series in a Data page. Refer to Figure 6-13a for an example of how data is set up.

3-D XYZ Surface Line

Use a 3-D XYZ Surface Line chart (Fig. 6-17) to show three dimensional data where one quantity (plotted on the Z axis) varies depending on X and Y values.

XYZ data, not evenly incremented like Surface Line or Fill data. Each series consists of three columns.

All of the axes on a 3-D Surface Line chart measure values: the frequency, amplitude, and phase of an electrical signal, for example. The left axis is X, the right axis is Y, and the vertical axis is Z.

Note: On a 3-D chart, the axes are the three lines that intersect in the back of the chart. They are not the lines where the axis labels appear.

Refer to Figure 6-13a for an example of how data is set up.

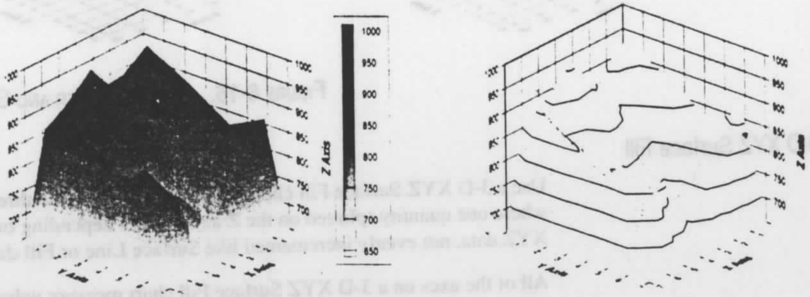


FIGURE 6-17. 3-D XYZ SURFACE FILL AND XYZ SURFACE LINE CHARTS

Special 1 Charts

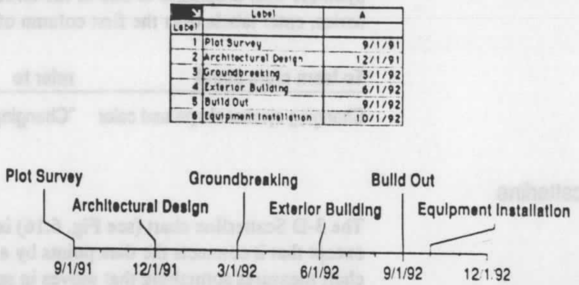
Time Line

Use a Time Line chart (see Fig. 6-18) to display a project time line or even a product comparison based on a predetermined scale.

A Time Line uses two columns per data series. Enter the labels for your Time Line in the first column (Label) and the numbers or times in the second column (A). You can create additional series on the same Data page with (B) labels, (C) numbers, (D) labels, (E) numbers, etc.

Once the Time Line is plotted, you can select and reposition chart labels as a group or individually. When you drag a Category label to a new location, the "arm" connecting it to the Time Line follows.

To learn more about	refer to
Selecting chart elements	"Selecting Parts of a Chart" in Chapter 7
Changing the Category axis	"Changing Tick Marks and Chart Grids" in Chapter 7



↘	Label	A
Label		
1	Plot Survey	9/1/91
2	Architectural Design	12/1/91
3	Groundbreaking	3/1/92
4	Exterior Building	6/1/92
5	Build Out	9/1/92
6	Equipment Installation	10/1/92

FIGURE 6-18. TIME LINE CHART

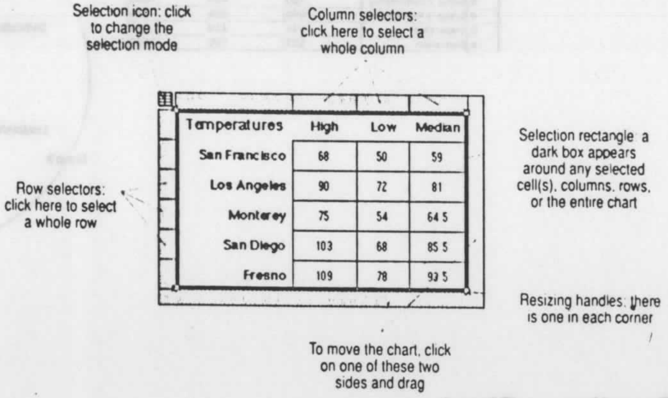
Table

Use a Table chart (see Fig. 6-19 and 6-20) to chart data as it appears in the Data page.

Enter the table data, including row and column labels, as you want it to appear in the Table chart. You can use the upper left-hand cell in the Data page to enter a title over the Category labels in the table. You can also make a page column wider by selecting a vertical line and dragging it.

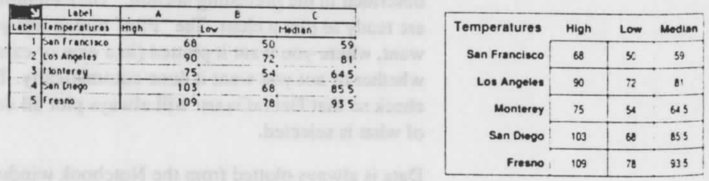
You can attach a Table chart by choosing "Attach Table" from the Chart menu. (The command is dimmed if you select an inappropriate chart.) Created from the same data used to plot the selected chart, the new Table chart appears in the window aligned with the existing chart's Category labels. Because the two charts share Category labels, you cannot resize the Table chart along the adjoining axis; the only way to change this dimension of the Table chart is to resize the original; the Table chart resizes automatically to maintain the alignment.

As soon as you select a Table chart in the Chart window, you notice that it is different. When you select it, a shaded border appears around the outside. The Selection icon in the upper left corner of the shaded border changes from a solid square to a grid square when you click it to indicate which selection mode you are in; the solid square indicates the backplane is selected; the grid square indicates that the chart elements can be individually selected so you can change text attributes and alignment. Refer to Figure 6-19 for additional information about the Table chart.


Selection icon: click to change the selection mode
Column selectors: click here to select a whole column
Selection rectangle: a dark box appears around any selected cell(s), columns, rows, or the entire chart
Row selectors: click here to select a whole row
Resizing handles: there is one in each corner
To move the chart, click on one of these two sides and drag

Temperatures	High	Low	Median
San Francisco	68	50	59
Los Angeles	90	72	81
Monterey	75	54	64.5
San Diego	103	68	85.5
Fresno	109	78	93.5

FIGURE 6-19. ELEMENTS OF A TABLE CHART



	Label	A	B	C
Label	Temperatures	High	Low	Median
1	San Francisco	68	50	59
2	Los Angeles	90	72	81
3	Monterey	75	54	64.5
4	San Diego	103	68	85.5
5	Fresno	109	78	93.5

Temperatures	High	Low	Median
San Francisco	68	50	59
Los Angeles	90	72	81
Monterey	75	54	64.5
San Diego	103	68	85.5
Fresno	109	78	93.5

FIGURE 6-20. TABLE CHART

Special 2 Charts

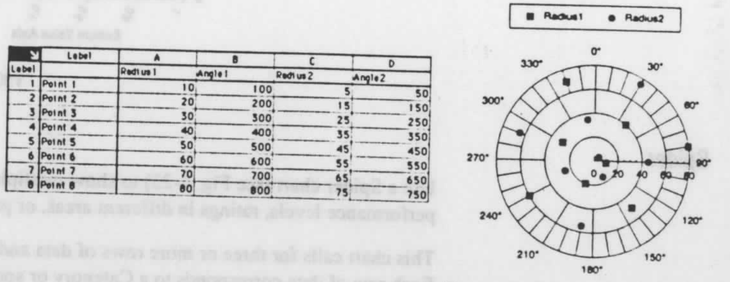
Polar

Use a Polar chart (see Fig. 6-21) to show cyclical trends. This chart scales time into degrees.

The Polar chart requires at least two columns of data for each data series: the first column of data corresponds to distance from the center of the chart or the Radius, and the second column corresponds to the number of degrees on the perimeter of the chart or the Angle.

To label each series, enter labels over the first column of each data series in a Data page.

To learn more about	refer to
Changing symbol shape and color	"Changing Chart Symbols" in Chapter 7



	Label	A	B	C	D
Label		Radius1	Angle1	Radius2	Angle2
1	Point 1	10	100	5	50
2	Point 2	20	200	15	150
3	Point 3	30	300	25	250
4	Point 4	40	400	35	350
5	Point 5	50	500	45	450
6	Point 6	60	600	55	550
7	Point 7	70	700	65	650
8	Point 8	80	800	75	750

FIGURE 6-21. POLAR CHART

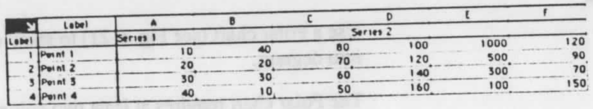
Ternary

Use a Ternary chart (see Fig. 6-22) to show the percentage of a whole based on three parts of information.

The Ternary chart requires three columns of data for each data series. The first column corresponds to values on the X axis, the second column corresponds to values on the Y axis, and the third column corresponds to values on the Z axis. The position of the axes for a Ternary chart can be changed from the "Options" dialog.

To label each data series, enter labels over the first column (X) of each data series. These labels appear in the legend.

To learn more about	refer to
Changing symbol shape and color	"Changing Chart Symbols" in Chapter 7



	Label	A	B	C	D	E	F
Label		Series 1			Series 2		
1	Point 1	10	40	80	100	1000	120
2	Point 2	20	20	70	120	500	90
3	Point 3	30	30	60	140	300	70
4	Point 4	40	10	50	160	100	150

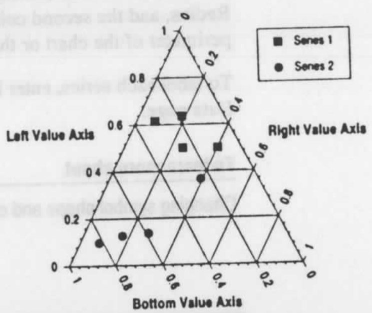


FIGURE 6-22. TERNARY CHART

Spider

Use a Spider chart (see Fig. 6-23) to show multiple variables, such as performance levels, ratings in different areas, or progress.

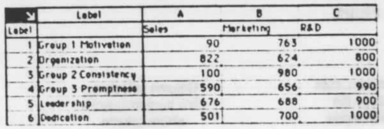
This chart calls for three or more rows of data and one or more columns of data. Each row of data corresponds to a Category or spoke in the chart. Each column of data corresponds to a data series: these labels appear in the legend.

Row labels are used to name each Category or spoke. Column labels are used to name each data series, this label appears in the legend.

If one or more of the chart's spokes falls into a group, you might want to enter group labels, which functions some what like an axis title in that thy identify consecutive runs of Categories. Group labels appear beyond the Category labels around the perimeter of the chart and lie midway between the first Category of the group and the last.

To enter group labels, enter the group name, a colon, and the Category label in the label column of the first word of each group. All Category labels between one group label and the next are automatically included in the preceding group.

Re-positioning of all Spider chart labels can be done using the "Labels" command in the Chart menu.



	Label	A	B	C
Label		Sales	Marketing	R&D
1	Group 1 Motivation	90	763	1000
2	Organization	822	624	800
3	Group 2 Consistency	100	980	1000
4	Group 3 Promptness	590	656	990
5	Leadership	676	688	900
6	Dedication	501	700	1000

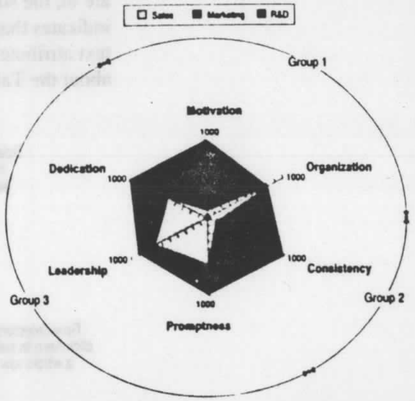


FIGURE 6-23. SPIDER CHART

Creating a Chart

Once you have entered your data and become familiar with the chart types described in the preceding section, "Understanding the Types of Charts," you are ready to plot a chart. The "Plot" dialog lets you specify the type of chart you want, where you want it plotted (in a new or existing Chart window), and whether or not you want it done automatically. There is also an option you can check so that DELTAGRAPH will always plot all data from a Data page regardless of what is selected.

Data is always plotted from the Notebook window.

To create a chart:

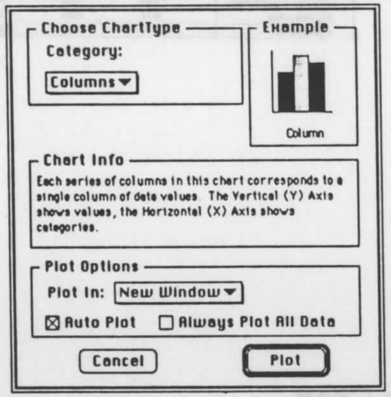
1. **Open the Data or Text page that contains the data you want to plot.**

2. **Select the data you want to plot from the Notebook window if necessary.**

   Data in a Data page must always be selected. If you are plotting data from a Text page which contains more that one Title line (zero hierarchical level) you must select the group you want to plot.

3. **Click the Plot icon at the top of the Notebook window, choose "Plot..." from the Chart menu, or type ⌘-G.**

   The "Plot" dialog appears with defaults set as shown below. If you have plotted any charts in the same work session. You may see a different chart in the "Example box.



Each series of columns in this chart corresponds to a single column of data values. The Vertical (Y) Axis shows values, the Horizontal (X) Axis shows categories.

4. **Press the pop-up menu in the "Choose Chart Type" section to display a categorical list of chart types and drag down the list.**

   Custom templates containing chart for any auto-loaded or open Custom Libraries appear at the bottom of the pop-up menu. If you have a Standard Library file, those charts appear inter-mixed within the chart categories.

   When selected, each listing — including the libraries — displays a pictorial representation of the charts available.

5. **Select the chart you want, then release the mouse button.**

   The chart type you selected appears in the "Example" box, and the "Chart Info" box displays a brief explanation of the selected chart type and the type of data needed.

6. **Press the pop-up menu next to "Plot In" if you want the chart plotted in an existing Chart window.**

   All Chart windows associated with the current file are listed at the bottom of the pop-up; you can plot your chart in any window listed, regardless of whether or not it contains other objects.

7. **Make other selections as needed.**

   Auto Plot Determines whether or not the chart is plotted automatically in the selected Chart window. This gives you the option of drawing the chart to specific dimensions — very helpful if you need to fit a special layout.

   When selected (default), DELTAGRAPH automatically calculates the best dimensions for the chart and draws it in the specified window as soon as you click "Plot."

   When de-selected and you click "Plot," DELTAGRAPH activates the specified Chart window and displays a chart icon attached to a cross hair cursor. Click the mouse and drag the cursor to create a box the size and shape you want your chart; when you release the mouse button, the chart appears. Hint: you may want to choose "Rulers & Grids..." from the Draw menu and select "Show Rulers" in the dialog that appears before you start drawing your chart box.

   "Auto Plot" always reverts to the default when you finish drawing your chart.

   Always Plot All Data This option applies to Data pages only. Select it if you want DELTAGRAPH to automatically plot *all* data from the open Data page. This option is useful when linking to an imported Excel file and you want to update the file using all of the data. It can also be used as a shortcut to updating a chart after you've revised the data. If this option was selected when you first plotted the chart, all you have to do to update the chart after making changes on the Data page, is to resize an axis.

8. **Click on "Plot" to create the new chart.**

   The chart appears in the specified window. If you selected "Auto Plot," you must follow the instructions in step 7 to display the chart.

   To return to the Notebook window without plotting a chart, click "Cancel."

To learn more about	refer to
Modifying your charts	Chapter 7, "Customizing Your DELTAGRAPH Charts," and Chapter 8, "Using the 'Options...' Command"

Deleting Charts

There may be times you want to delete one or more charts from a Chart window. There are several ways to do this.

To delete one or more charts:

1. **Select the chart(s).**
2. **Press the Delete key, or choose "Cut" (⌘–X) or "Clear" from the Edit menu.**

   Using the "Cut" command stores a copy of the deleted chart(s) in the Clipboard; using "Clear" or the Delete key does not.

Note: Deleting a chart does not remove the Chart window. See "Deleting Chart Windows" in the next section for help with this.

To empty a Chart window so you can reuse it, choose "Select All" from the Edit menu and press the Delete key or choose "Cut" (⌘–X) or "Clear" from the Edit menu. ("Cut" places a copy of the select object(s) in the Clipboard; the other options do not.)

Working with Chart Windows

Creating or Adding Chart Windows

DeltaGraph creates a new Chart window every time you plot a chart, unless you choose an existing Chart window from the "Plot..." dialog when selecting a chart type.

There may be times, however, you'll want to create a Chart window without plotting a chart — if, for example, you'd like to set up a template for a chart background; import a graphic to store in a Custom Library for convenient access from any Chart window; or create a graphic or text titles for a slide show.

To create an empty Chart window, choose "Chart Windows" from the Windows menu, and select "New" from the hierarchical menu. The window appears, with a default name (Chart Window #1, Chart Window #2, etc.) in the Title bar that is also added to the list of Chart windows associated with the file that appears at the bottom of the Windows menu and the "Plot..." dialog. (See "Naming a Chart Window" below if you want to rename the new window.)

If you want to plot a chart into this window at a later time, just select its title from the pop-up menu near the bottom of the "Plot..." dialog when selecting the chart type.

Naming a Chart Window

To help you keep track of the Chart windows in a file, DeltaGraph automatically gives the windows the default names "Chart Window #1," "Chart Window #2," and so forth. You can assign your own names to Chart windows to help identify their contents. All the Chart windows associated with a file are listed at the bottom of the Windows menu and in the pop-up menu at the bottom of the "Plot" dialog when the file is open.

To name a Chart window:

1. **Choose "Chart Windows" from the Windows menu and select "Name..." from the hierarchical menu.**

   The following dialog appears with the default name selected.

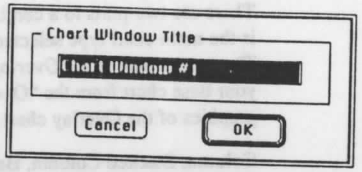


Chart Window Title

Chart Window #1

2. **Enter a new name.**

   The new name overwrites the default name.

3. **Click "OK" to rename the Chart window, or click "Cancel" to return to the window without renaming it.**

   If you click "OK," the new name replaces the old name in the Title bar of the window and in the list of Chart windows in the Windows menu.

Hiding Chart Windows

You can hide all open Chart windows by choosing "Chart Windows" from the Windows menu and selecting "Hide All" from the hierarchical menu. To re-display a Chart window, choose the window title from the bottom of the menu.

Deleting Chart Windows

You have two choices when deleting Chart windows: you can remove the active window only, or you can delete a series of unneeded Chart windows.

To delete the active Chart window, choose "Chart Windows" from the Windows menu, and select "Delete" from the hierarchical menu. After asking you to confirm your selection, DeltaGraph deletes the window and its contents. For a short cut, you can hold down the Shift key while clicking on the Chart window Close box, the chart is automatically deleted without confirmation.

To delete a series of Chart windows, choose "Chart Windows" from the Windows menu, and select "Delete Many..." from the hierarchical menu. A dialog appears listing all Chart windows associated with the file. Select the windows you want to delete by using the Shift–click key combination. After asking you to confirm your selection, DELTAGRAPH deletes the selected windows.

Combining Charts

DELTAGRAPH gives you the option of combining two different types of numeric charts (plotted from the same Data page) so you can highlight relationships. For example, you can overlay a Line chart that represents corporate expenses on a Column chart that represents revenues to create a combination chart that clearly illustrates what percentage of your income is eaten up by expenses.

There are two parts to a combination chart. The first part is the *Base* chart. This is the main chart type selected in the "Plot" dialog when you first create a chart. The second part is the *Overlay* chart. This is the chart type that you apply to your base chart from the "Overlay..." command in the Chart menu. The data graphics of the Overlay chart always go on top of the Base chart.

Column, Stacked Column, Bar, Stacked Bar, Line, Step, Area, X-Y Line, Paired X-Y Line, Scatter, and Paired Scatter charts can all be used as a Base.

Not all chart types can be used for these combination charts. 3-D charts and non-rectangular 2-D charts do not work. A chart with values on both axes can only be overlaid with a chart that also has values on the X and Y axes. Overlay options that are not available or compatible are dimmed in the "Overlay" dialog.

The Overlay chart uses data that is already a part of the Base chart. This means that when creating a base chart to which you later add an overlay, you must first select all of the data that you want to appear in the chart. This includes the data for both the base chart and the overlay.

Note: If your chart does not include all of the data you want, use the "Revise Data..." command to add more data to the chart. This works both before and after you add an Overlay.

To create a combination chart:

1. **Open the Data page that contains the data you need for your combination chart.**

   Only Column, Stacked Column, Bar, Stacked Bar, Line, Step, Area, X-Y Line, Paired X-Y Line, Scatter, and Paired Scatter charts can be used in combination charts.

2. **Select the data you want plot.**

   To add an overlay to a chart you must have two or more series of data.

3. **Click the Plot icon at the top of the Notebook window, select "Plot..." from the Chart menu, or type ⌘-G.**

   The "Plot" dialog appears.

4. **Choose (a) the chart type you want as your base, or underlying chart from the pop-up menu under "Category" and (b) the Chart window you want it send it to.**

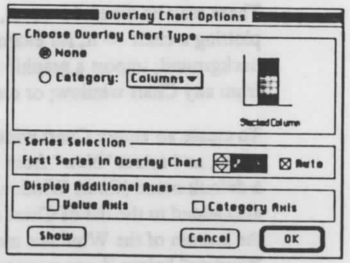
5. **Click "Plot" to plot the chart as directed, or click "Cancel" if you change your mind.**

   If you click "Plot," The chart is automatically sent to a new Chart window unless you select an existing Chart window from the pop-up menu in the "Plot Options" section of the dialog.

   If you click "Cancel," you are returned to the Data page.

6. **Select the chart and choose "Overlay..." from the Chart menu.**

   A dialog appears so you can select a chart type and other parameters for your overlay chart.



Overlay Chart Options

Choose Overlay Chart Type

● None

○ Category: Columns

Series Selection

First Series in Overlay Chart ☒ Auto

Display Additional Axes

☐ Value Axis ☐ Category Axis

7. **Click on the pop-up menu in the "Choose Overlay Chart Type" section and choose a chart type for your overlay.**

8. **In the "Series Selection" area of the dialog select the first series you want to use in the overlay chart by typing in a number or clicking the direction arrows to scroll to the series you want.**

   Only data that was selected to plot the base chart is available.

   The series number you pick and all data series that follow are assigned to the overlay chart. For example, if you have five data series in your chart and you choose series 3 as the first series in your overlay chart, the third, fourth, and fifth series are displayed in the overlay chart; the first and second series are displayed in the base chart.

9. **To place the axis labels on an additional axis on your chart, click on the appropriate selection boxes in the "Display Additional Axes" section of the dialog.**

   If you are working with chart types that have values on both the horizontal (X) and vertical (Y) axes, your choices are "X Axis" and "Y Axis."

10. **Click "Show" to preview your changes without exiting the dialog.**

    This makes it easy to experiment with different effects. You can move the dialog out of the way by dragging the title bar.

11. **When you have the results you want, click "OK" to implement the changes.**

    If you want to exit the dialog without changing the chart, click "Cancel."

Once you have created a combination chart, the "Options..." command in the Chart menu changes to a hierarchical menu so you can change options for the base chart or the overlay chart.

Creating Double-Axis Charts

In combination with the overlay feature, DeltaGraph also makes it possible to display additional axes on your charts. You can add a second horizontal (X) and/or vertical (Y) axis to your 2-D charts. These additional axes can be formatted independently of the original axes.

You can add an additional axis to charts that do not include overlays. For example, in a large chart, you may want to show your Y or X axis labels twice to increase the chart's readability.

In most cases, however, you will probably add a second Y axis in conjunction with an overlay so that you can display widely different ranges of data sets on the same chart.

To create a chart with two independent axes:

1. **Select the chart you want to add an axis to.**
2. **Following the steps in the section on chart overlays, create an overlay so that at least one series of data is part of an overlay.**

   Typically this data would be within a different range of values from the data in the base chart.

3. **While in the "Overlay..." dialog, select which additional axis you want by clicking on the appropriate selection boxes in the "Display Additional Axes" section.**
4. **Click "Show" to preview your changes without exiting the dialog.**

   This makes it easy to experiment with different effects. You can move the dialog out of the way by dragging the title bar.

5. **When you have the results you want, click "OK" to implement the changes.**

   If you want to exit the dialog without changing the chart, click "Cancel."

   If "OK" was clicked, additional axes are created. If it is a Value axis, it is automatically scaled to fit the data that is part of the overlay.

Note: In some cases, when creating a double-axis chart, your overlay chart type will be the same as the main chart type. You need to create it as an overlay in order to differentiate which data goes with the second axis.

When a second X or Y axis is added to a chart it is also added to the hierarchical menus that appear when you select "Axis," "Ticks and Grids," or "Labels" from the Chart menu. This allows you to format the additional axis independent of the original axis.

Plotting Multiple Charts in the Same Window

There may be times you want to plot more that one chart in a Chart window; this can be an effective way to show side-by-side comparison, for example, you can also use this feature to replace a chart that has been deleted from a Chart window. Since a Chart window can contain any combination of charts and/or objects, all you need to do when plotting a new chart is select an existing Chart window from the pop-up menu next to "Plot In" near the bottom of the "Plot" dialog. See "Creating a Chart" earlier in this chapter if you need help with this. If you need more pages to display the charts, choose "Number of Pages..." from the Windows menu so you can click to select the number of pages you need in the dialog that appears.

To plot multiple charts:

1. **Open the Data or Text page that contains the data you want to plot.**
2. **If plotting from a Data page, select the data you want included in your chart.**
3. **Click the Plot icon at the top of the Notebook window, choose "Plot..." command from the Chart menu, or type ⌘–G.**

   The "Plot" dialog appears.
4. **Choose the chart type you want from the pop-up menu under "Category."**

   The selected chart type appears in the "Example" box of the dialog.
5. **Click on the "New Window" pop-up menu and select an existing Chart window.**
6. **Click "Plot" to add the new chart to the selected Chart window, or click "Cancel" to return to the Notebook window.**

   If you need more pages to display the charts, choose "Number of Pages..." from the Windows menu so you can click to select the number of pages you need in the dialog that appears.

Changing the Chart Type

After plotting a chart you may realize that a different type of chart would be more appropriate for your data. There are two ways to change the type of chart; replot the data from the Notebook window, or use "Change Type..." from the Chart menu.

Certain chart types are incompatible and cannot be interchanged. As explained in "Understanding the Types of Charts," earlier in this chapter, the data for some charts is set up differently than it is for others. Charts must have the same data configuration, and they must be of the same general type, (that is, 2-D, 3-D or Text) to be interchangeable. Incompatible chart types are dimmed in the "Change Chart Type" dialog so that you cannot select them.

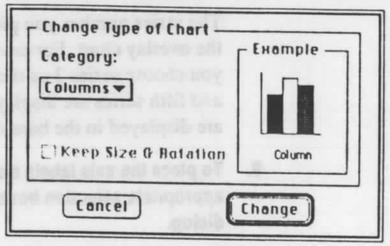
This option can also be used after making numerous changes to a chart that doesn't come out the way you planned. "Change Type..." allows you to reselect the same chart type with its original defaults.

To change the chart type:

1. **Select the chart.**

2. **Choose "Change Type..." from the Chart menu.**

   The "Change Type of Chart" dialog appears, with a picture of the selected chart in the "Example" box.



3. **Choose a chart type from the pop-up menu under "Category."**

   Keep Size & Rotation Maintains any size or rotation changes made to the existing chart. This option is only available if you are selecting the same chart type or selecting a chart from a Custom Library.
4. **Click "OK" to change the chart type.**

   If you want to exit the dialog without changing the chart, click "Cancel."

Updating Your Charts

The "Update" command in the Data menu is selected from a Notebook window when you want to update *all charts* associated with the any changed pages in the Notebook window.

To update only one chart, see the next section, "Revising Chart Data."

To update all charts associated with a page:

1. **Make changes to data in the Notebook window.**

   Changes can be entered manually on any Data or Text page. On a Data page only, changes can also be imported or generated my calculations applied with the "Formula Builder..." command.
2. **Click the Update icon at the top of the Notebook window, choose "Update from the Data menu, or type ⌘–=.**

   DELTAGRAPH automatically updates all associated charts without replotting the data.

Note: If you use the "Check Spelling..." command in the Edit menu to correct misspellings in one or more Notebook windows, DELTAGRAPH Automatically displays a dialog asking if you want to update any associated charts

Revising Chart Data

The "Revise" command in the Data menu is selected from a Chart window when you want to update *only the selected chart*. Use this option when you want to edit or use a different range of data without affecting every chart generated from that data. This makes it simple to select different data sets for a chart, add new Series, Categories, or data points to a chart, or do comparisons of different segments of your data.

To update *all* charts after revising data on a Data or Text page, see the preceding section, "Updating Your Charts."

To update one chart only:

1. **Select the chart you want to change.**
2. **Choose "Revise Data" from the Data menu, type ⌘–, (comma), or click on the Revise icon in the Chart window.**

   If the chart is not selected the computer beeps to remind you.

   DELTAGRAPH returns to the originating page of the Notebook window and displays a "floating window" in the lower-left corner to notify you that you are in the Revise Data mode. The existing data range for the chart you selected is highlighted.

   You can drag the floating window's Title bar to move it away from your viewing area.

3. **Select your new data range.**

   When you are in the Revise Data mode, many other Notebook window features are active and available to you: you can enter or import new data, create a link to an Excel file, change the hierarchy of entries, switch to another Data or Text page, or use the "Formula Builder..." command to create new data. While in the Revise Data mode you cannot plot a new chart or delete the current chart.

   To add to your current data selection, hold down the Command key (⌘) and select the additional data. To select a new range of data, de-select the current data by clicking in any cell and then select a new range; you can select by column, row, or individual cells.

4. **When you have made your new data range selection, click the "Revise" button in the floating window.**

   Your new data selection is applied to the selected chart only and you are returned to the Chart window.

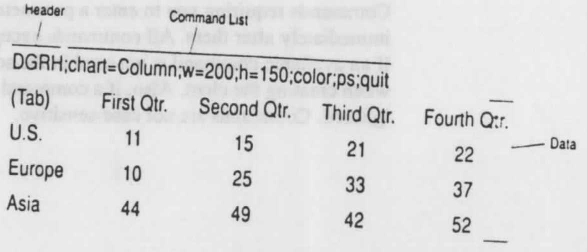
5. **If you decide not to make any changes to your data selection, click "Cancel" in the floating window to exit the Revise Data mode and return to the Chart window.**

Using the Internal Command Language (ICL)

DELTAGRAPH's Internal Command Language lets you automate chart creation from another application or text string. Using programs such as HyperCard™, SuperCard™, Microsoft® Excel, or any other application that can generate a text string and send it to the Clipboard, you can create *Command Scripts* that automatically bring in data, create charts, and copy them into the Clipboard for transfer back to the original application.

Creating Command Script Formats

The Command Script is written in one of the programs described above. An example Command Script is shown below. There are three basic elements to each Command Script.



```
DGRH;chart=Column;w=200;h=150;color;ps;quit
(Tab)     First Qtr.   Second Qtr.   Third Qtr.   Fourth Qtr.
U.S.         11            15            21           22
Europe       10            25            33           37
Asia         44            49            42           52
```

FIGURE 6-24. ICL EXAMPLE COMMAND SCRIPT

TABLE 6-1. ICL COMMAND SCRIPT ELEMENTS

COMMAND	DESCRIPTION
Header	Tells DELTAGRAPH that a command script follows. "DGRH" is the four-character Header and must be used at the beginning of every script. The Header is followed by a semi-colon (;) to separate it from the Command List.
Command List	Lists the chart type and formatting options available for the creation and formatting of the chart. Each of the individual commands must be separated by a semi-colon. The Command List does not need to be in any particular order. Individual commands are listed in Table 6-2.
Data	The Data must be in tab-delimited form, with a carriage return at the end of each line of text. The chart will use the data just as it would if it were in the Data page. Any Series axis labels should appear in the first line of data,; any Category axis labels should appear in the first column of data.

The Header and the Command List are always on the same line of text with no carriage returns. The total length of all parameters in the Header and the Command List cannot be greater than 255 characters.

The Command List is ended by a carriage return. The next line and all following lines of text make up the data to be used in creating the chart.

Using Command List Options

There are two types of commands in the Internal Command Language. Some require the user to enter a parameter and others only require the command name. Commands requiring you to enter a parameter have an equal sign (=) immediately after them. All commands except the chart command are optional. If an available command is not used in the script, the default chart setting is used when creating the chart. Also, if a command or parameter is misspelled, it is ignored. Commands are not case-sensitive.

TABLE 6-2. ICL COMMAND LIST OPTIONS

COMMAND	DESCRIPTION
chart=*chartname*	Describes what type of chart you want the script to build. You can choose any DELTAGRAPH chart name or any chart from a Custom Library. Spelling must be exact; for 3-D charts, the name must include the dash between the "3" and the "D" and a space after the "D." Example: **chart=3-D Column**
w=*integer*	Describes the width of the plot frame for 2-D charts, and the width of the X and Y axes in 3-D charts. Width is measured in points (1 point is equal to 1/72 of an inch). The parameter entered can be any integer between 1 and 32767. Example: **w=350**
h=*integer*	Describes the height of the plot frame in 2-D charts, and the height of the Z axis in 3-D charts. Height is measured in points (1 point is equal to 1/72 of an inch). The parameter entered can be any integer between 1 and 32767. Example: **h=225**
font=*fontname*	Describes the Macintosh font type you want used in your chart. You can use any Macintosh font available in the Font menu. Example: **font=Times**
size=*fontsize*	Describes the font size for the text in your chart. You can enter any integer between 3 and 127. Example: **size=18**
library=*libraryfilename*	Describes the Custom Library name you want to open. The library must be in the same folder as DELTAGRAPH. The named library will not open if there are already four Custom Libraries open (any auto-loaded libraries are opened first). Example: **WRI Sales Library**

Table 6-2. ICL Command List Options continued

Command	Description
color	Tells DeltaGraph to draw the chart using color defaults.
ps	Tells DeltaGraph to embed a PostScript description in the picture. Use this command if you are planning to put the picture into a drawing, layout, or presentation program that supports object-oriented PICT files that will be printed with a Postscript device.
quit	Tells DeltaGraph to quit after building the chart.

Your DeltaGraph installation disks include a sample HyperCard™ stack called "HyperCharter" that gives you a simple example of how the Internal Command Language can be used to automate chart making. We invite you to study the stack, specifically the button script in the "Make Chart" button, to learn more about using ICL.

To create an ICL script:

1. **Attach the Header and Command List to your tab-delimited data as previously described.**
2. **Copy the Command Script and paste it into the Clipboard.**
3. **Open DeltaGraph.**
4. **If the "quit" command is used: The chart is placed in the clipboard and DeltaGraph is quit.**

   If the "quit" command is not used: The new chart appears in the Chart window.

7 Customizing Your DeltaGraph Charts

This chapter describes ways you can increase the impact and legibility of your DeltaGraph charts by using commands from the Chart menu to modify individual chart elements. You can also use the tools in the Toolbox and commands in the Text menu to change the colors, patterns, line widths, and text attributes for an entire chart or selected elements only.

To learn more about	refer to
Modifying data in numeric charts	Chapter 4, "Organizing Data in a Data Page"
Modifying data in text charts	Chapter 5, "Organizing Data in a Text Page"
Other ways to modify your charts	Chapter 8, "Using the 'Options...' Command"
Adding error bars and curve fits to charts	Chapter 9, "Adding Error Bars and Curve Fits to a Chart"
Modifying chart lines, colors, and fills	"Changing the Attributes of a Draw, Text, or Chart Object" in Chapter 10
Importing Graphics	Chapter 11, "Importing and Exporting Graphics"

This chapter covers:

- Selecting parts of a chart
- Changing the appearance of a chart's axes
- Formatting chart text
- Adding axis titles to a chart
- Changing the placement of axis labels and titles
- Adding value labels to data graphics
- Changing the shape, color, and size of chart symbols
- Showing and hiding chart grids
- Changing the direction and length of tick marks
- Changing the viewing angle of 3-D charts
- Adding depth to 2-D charts

Selecting Parts of a Chart

Before you can move, resize, or modify a chart, you must select it. To change the colors, patterns, line widths, or text attributes of individual chart elements, you must then select the appropriate element(s).

Although the legend and all labels are part of the chart, any one of them can be moved independently of the chart and the other elements if selected separately as a chart element. The legend can also be resized separately.

To learn more about	refer to
Moving and resizing charts	"Moving and Resizing Objects" in Chapter 10

To select a chart:

1. **Display the appropriate Chart window by choosing from the selection of titles listed at the bottom of the Windows menu.**
2. **Click on the Pointer tool in the Toolbox, if it is not already selected.**
3. **Click anywhere on the chart you want to select.**

Object handles (small squares) appear in the four corners of the chart to show it is selected (see Fig. 7-1).

Axis resizing handles (large squares) also appear. 2-D charts have two axis resizing handles; 3-D charts have three axis resizing handles (see Fig. 7-1).

Any changes you make at this point to line widths, text attributes, patterns, or color will affect the entire chart. If you want to modify individual elements only, you must go on to select them separately.

When the chart is selected, you can move it by placing the pointer in the chart and dragging it to a new location.

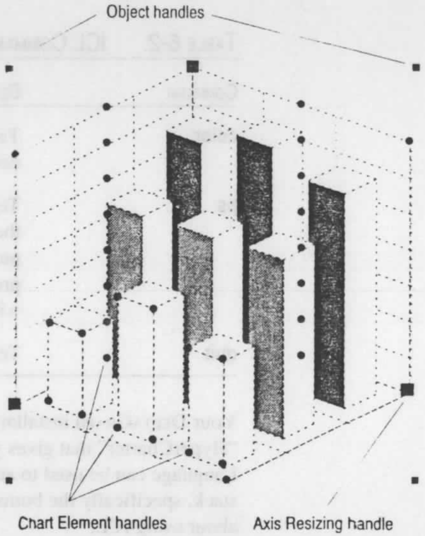


FIGURE 7-1. CHART HANDL

To select a chart element:

1. **Be sure the whole chart is selected.**
2. **Click on the chart element you want to select. (To select the legend, click on its border.)**

   Small circles appear to show that the element is selected (see Fig. 7-1).

   If the chart element you select is part of a group, such as axis labels, tick marks, legend text, or legend/data graphics, the whole group is selected.
3. **To select only one element in a group, click again on the element.**

To select multiple chart elements:

When selecting more than one chart element at a time, hold down the Comman key (⌘) when you click to select each element. Figures 2-8 and 2-9 identify the parts of both 2-D and 3-D charts.

You can select the following chart elements:

- whole chart
- labels on an entire axis or a single label
- legend, all legend labels, or a single legend label
- a single legend graphic, with or without corresponding data graphics (bar, line, etc.)*
- a data graphic series (with corresponding legend graphic) or a single data graphic*
- an axis, axis grids, or axis tick marks
- chart back planes
- bottom or top depth plane, or side depth plane (2-D charts)
- tops of data graphic series or a single data graphic* (3-D charts)
- right sides of data graphic series or a single data graphic* (3-D charts and 2-D charts with depth added)
- left sides of data graphic series or a single data graphic* (3-D charts)

* When a data graphic is selected, the lines defining the graphic are also selected. To change the fill color or pattern, use the Fill-Color and Fill-Pattern palettes; to change the lines, use the Line-Pattern and Line-Width palettes.

Reformatting a Chart's Axes

A chart's axes are the lines creating the frame of the chart; they are marked at each end by the axis resizing handles (large squares) that appear when you select the chart. 3-D charts have three axes: an X, Y, and a Z axis (see Fig. 7-2). 2-D charts have only two axes: an X and a Y axis. The function and the name of each axes varies depending on the type of chart.

Text, Pie, and special charts (charts within the Text, Pie, Special 1, and Special 2 categories) are unique in that some do not have axes (Org, Bullet, Pie, and Table charts), the axis names are unique to the chart type (Time Line, Spider, Ternary, and Polar charts), or the axis cannot be reformatted (Polar chart).

For those charts containing axes, at least one of the axes is a Value axis. Most charts also have a Series and/or a Category axis, but some charts such as the Spider chart, may have two or more Value axes.

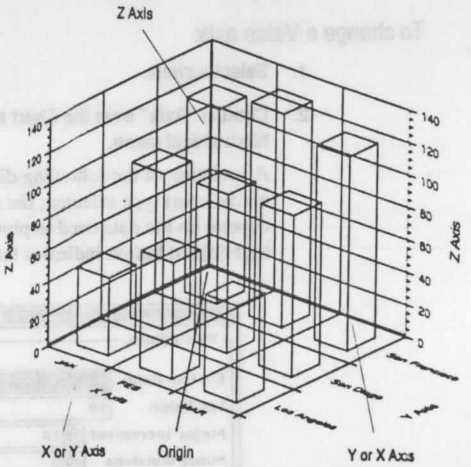


FIGURE 7-2. 3-D CHART AXES

DELTAGRAPH creates the axes for each chart you plot according to the type of chart you select and basic parameters of your data; for instance, it calculates a "correct" length for each axis, determines the best position for each axis and its components, and displays labels on each axis as appropriate.

You can use the "Axis" command in the Chart menu to open a dialog to change these and many other attributes of a chart's axis. The "Set All..." command in the Chart menu allows you to change more than one axis at a time.

To learn more about	refer to
Identifying the axes in a chart	"Understanding the Types of Charts" in Chapter 6

Changing the Value Axis

DELTAGRAPH automatically computes appropriate values for the beginning and end of each Value axis and for the incremental placement of tick marks along the axis. These values are based on the range of data used to plot the chart.

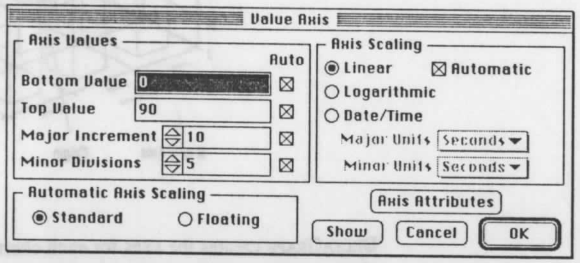
To change these values, and other attributes of the Value axis, choose "Axis" from the Chart menu and select a Value axis from the hierarchical menu. (Axes listed by names such as "X axis," or "Z Axis" etc., are always Value axes.) This opens a dialog whose options and defaults are specific to the chart selected. For charts with two or more Value axes, you must change each axis separately.

Changing the Value axes for 2-D and 3-D charts are virtually the same.

To change a Value axis:

1. **Select a chart.**
2. **Choose "Axis" from the Chart menu and select a Value axis from the hierarchical menu.**

   A variation of the following dialog appears. The available options depend on the chart type selected; the default values displayed in each dialog depend on the data used to plot the chart. An X in a selection box or a highlighted button indicates the option is on.



Bottom Value 0 ☒
Top Value 90 ☒
Major Increment 10 ☒
Minor Divisions 5 ☒
● Linear ☒ Automatic
○ Logarithmic
○ Date/Time
Major Units Seconds
Minor Units Seconds
● Standard ○ Floating

3. **Make your selections and enter data as needed.**

   Each "Value Axis" dialog includes some of the following options:

   Axis Values Sets the minimum/maximum values and the major/minor increments for marking them on the Value axis.

   Depending on the chart type selected, the minimum/maximum values appear at the "Bottom/Top," "Inner/Outer," or "Left/Right" edges of the Value axis. You can type in new values to extend or shorten the axis.

   If you change any of axis values, the corresponding "Auto" selection box(es) and the "Automatic" selection box on the right side of the dialog become de-selected. To automatically change an axis back to its default value, click in the appropriate selection box; to change *all* the axes back to their original values, select "Automatic."

   Major Increment Sets the divisions for labels, major ticks, and grids on the Value axis. Enter a value or click the direction arrows to scroll the options.

   Minor Divisions Sets the divisions for minor ticks and grids on the Value axis. Enter a value or click the direction arrows to scroll the options.

   Axis Scaling Determines the axis-scaling algorithm. DELTAGRAPH automatically computes values for the three algorithms as described below, but you can enter new values in the "Axis Values" section of the dialog. You have the following axis-scaling options:

   Linear Scales the chart based on graduated values computed from the data in the Data page.

   Logarithmic Scales the chart based on powers of ten.

   Date/Time Scales the chart based on units of time measurement, which is useful only if your data consists of dates or times.

   If you choose the Date/Time option, "Minor Divisions" (under the "Axis Values" section) changes to "Minor Increment." You may also have to format your Value axis labels within the Chart window to reflect the times or dates you want to display.

   The "Major/Minor Units" pop-up menus offer the following options:

   - Seconds
   - Minutes
   - Hours
   - Days
   - Weeks
   - Months
   - Quarters
   - Years
   - Decades
   - Centuries

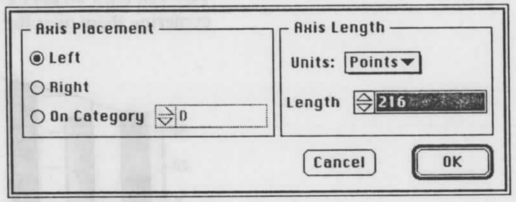
   Automatic DELTAGRAPH automatically calculates appropriate incremental divisions for the axis, as well as minimum maximum values. If you enter new values for any or all of the options under "Axis Values," this option is de-selected. To automatically reset all values to their default, re-select this option.

   Automatic Axis Scaling Determines the start and end values of the axis based on the values of the data plotted.

   If "Standard" is selected, then the items within the in "Axis Values" section (Top/Left Value, Bottom/Right Value, Major Interval) will be changed so that zero is either on or between the top/left value and bottom right value. "Floating" attempts to optimize any of the first values without requiring zero to lie between the extremes. The items within the "Axis Values" section must be check as "auto" in order for "Standard" or "Floating" to operate.

Axis Attributes Displays a dialog so you can change the placement and length of the Value axis on 2-D charts.

A variation of the following dialog appears when setting the axis attributes in 2-D charts:


Axis Placement
● Left
○ Right
○ On Category 0
Axis Length
Units: Points
Length 216

Axis Placement Determines the location of the selected Value axis. The available selections depend on the type of chart selected. In a chart consisting of two or more Value axes, this feature is particularly useful when plotting both positive and negative numbers.

Left Displays the Value axis labels on the left side of the chart.

Right Displays the Value axis labels on the right side of the chart.

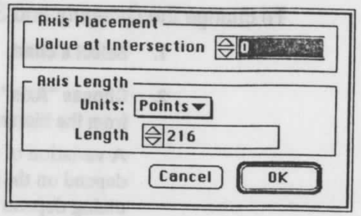
Top Displays the Value axis labels at the top of the chart.

Bottom Displays the Value axis labels at the bottom of the chart.

On Category/On Value Controls the placement the selected Value axis tick marks on the Category or Value axis grid (default is "0"). The placement of the Value axis labels does not change. You can enter the Category or Value axis grid number on which you want the selected Value axis to appear or click the direction arrows to scroll the options.

Axis Length Determines the length of the Value axis and which measuring unit to use. Click on the pop-up menu to choose from inches, centimeters, points (default), or picas. You can type in a new length or click the direction arrows to scroll the numbers in 36-point (half-inch) increments.

The following dialog appears when setting the axis attributes in 3-D charts:


Axis Placement
Value at Intersection 0
Axis Length
Units: Points
Length 216

Axis Placement Controls where the Value axis intersects the Category axis (default is "0"). The placement of the Category labels does not change. You can enter the Category axis grid number on which you want the Value axis to appear or click the direction arrows to scroll the options.

In a chart consisting of two or more Value axes, this feature is particularly useful when plotting both positive and negative numbers.

Axis Length Determines the length of the Value axis and which measuring unit to use. Click on the pop-up menu to choose from inches, centimeters, points (default), or picas. You can type in a new length or click the direction arrows to scroll the numbers in 36-point (half-inch) increments.

4. **Click "Show" to preview your changes without exiting the dialog.**

   This makes it easy to experiment with different effects. You can move the dialog out of the way by dragging the Title bar.

5. **When you have the results you want, click "OK" to implement the changes and return to the Chart window.**

   If you want to exit the dialog without changing the chart, click "Cancel."

Changing a Chart's Category and Series Axes

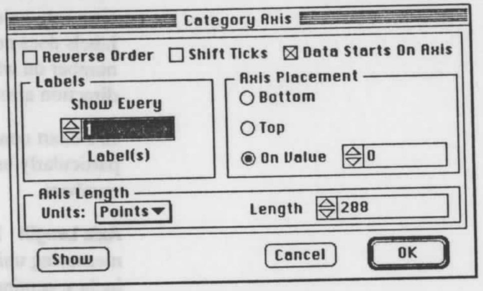
Many of the DeltaGraph defaults for Category and Series axes — including the number of labels showing, the order of the data series, and the length and location of the Category axis in 2-D charts — are easily changed. Choose "Axis" from the Chart menu and select the axis you want to change from the hierarchical menu. This opens a dialog whose options and defaults are specific to the chart and axis selected.

Remember, charts consisting of all Value axes do not have Category or Series axes.

To change the Category and Series axes:

1. **Select a chart.**
2. **Choose "Axis" from the Chart menu and select the axis you want to change from the hierarchical menu.**

   A variation of one of the following dialogs appears. The available options depend on the chart type selected; the default values displayed in each dialog depend on the data used to plot the chart. An X in a selection box or a highlighted button indicates the option is on.



Category Axis

☐ Reverse Order ☐ Shift Ticks ☒ Data Starts On Axis

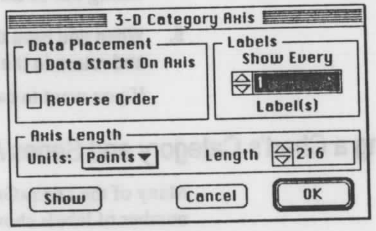
Labels: Show Every 1 Label(s)

Axis Placement: ○ Bottom ○ Top ● On Value 0

Axis Length: Units: Points Length 288

Dialog for 2-D Charts

The "3-D Series Axis" dialogs are set up just like the "3-D Category Axis" dialog below.



3-D Category Axis

Data Placement: ☐ Data Starts On Axis ☐ Reverse Order

Labels: Show Every 1 Label(s)

Axis Length: Units: Points Length 216

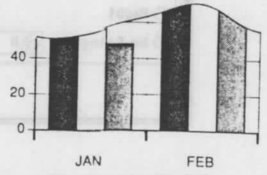
Dialog for 3-D Charts

3. **Make your selections and enter data as needed.**

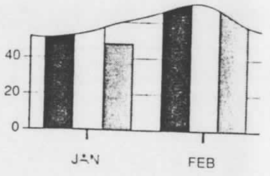
   Each dialog includes some of the following options:

Reverse Order (Not for every chart) Reverses the order of the selected axi

Shift Ticks (Category charts only) Positions the Category axis ticks between the Category axis grid marks (rather than at the grid marks), centering them over the Category axis labels as shown below.



Without Shift Ticks



With Shift Ticks

Data Starts On Axis (Not for every chart) Extents the data graphics to the edges of the Category axis.

Labels Controls at what interval the axis labels are displayed. For example: 1 = show every axis label, 2 = show every other axis label, etc. You can enter a label interval in the entry box or click the direction arrows to scroll the options.

Axis Placement (2-D charts only) Determines the location of the chart's Category axis. The available selections depend on the type of chart selected.

Left The axis starts at the left side of the chart.

Right The axis starts at the right side of the chart.

Bottom The axis starts at the bottom of the chart.

Top The axis starts at the top of the chart creating "hanging data graphics."

On Value Controls the placement the selected Category axis tick marks on the Value axis grid (default is "0"). The placement of the Category axis labels does not change. You can enter the Value axis grid number on which you want the selected Category axis to appear or click the direction arrows to scroll the options.

Axis Length (2-D charts only) Determines the length of the axis and which measuring unit to use. Click on the pop-up menu to choose from inches, centimeters, points (default), or picas. You can type in a new length or click the direction arrows to scroll the numbers in 36-point (half-inch) increments.

4. **Click "Show" to preview your changes without exiting the dialog.**

   This makes it easy to experiment with different effects. You can move the dialog out of the way by dragging the Title bar.

5. **When you have the results you want, click "OK" to implement the changes and return to the Chart window.**

   If you want to exit the dialog without changing the chart, click "Cancel."

Changing the Axes of a Polar Chart

Polar charts have two axes: the Radius axis and the Angle axis. Changing the Radius axis is just like changing the Value axis on a 2-D chart; see "To change a Value axis" earlier in this chapter for step-by-step instructions and an explanation of all the dialog options.

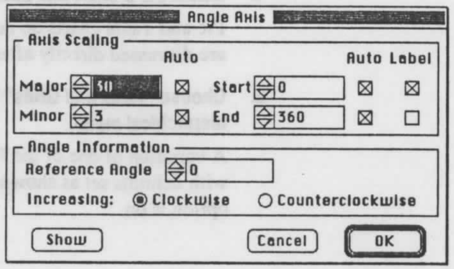
The Angle axis of a Polar chart can also be modified. You can change the starting and end points of the axis, whether the angle increases in a clockwise or counterclockwise direction, the number of tick marks on the axis, and several other axis-related attributes.

To change the Angle axis of a Polar chart:

1. **Select a Polar chart.**

2. **Choose "Axis" from the Chart menu and select "Angle" from the hierarchical menu.**

   The "Angle Axis" dialog appears, with defaults set as shown below. An X in a selection box or a highlighted button indicates an option is on.



Angle Axis

Axis Scaling

		Auto			Auto	Label
Major	30	☒	Start	0	☒	☒
Minor	3	☒	End	360	☒	☐

Angle Information

Reference Angle: 0

Increasing: ● Clockwise ○ Counterclockwise

3. **Make your selections and enter data as needed.**

   You have the following options:

Axis Scaling Controls the start/end points of the Angle axis and how many degrees apart the labels and tick marks are along the axis.

Major Sets the major tick marks and degree labels by interval. You can enter a degree interval or use the direction arrows to scroll the options. If you enter "60," for example, the chart angles are divided and marked every 60°. If "Auto" is selected, the degree interval reverts to the default, which is 30°.

Minor Controls how many divisions there are between the major tick marks. You can enter any number between 1 and 200 or use the direction arrows to scroll the options in increments of 5. If "Auto" is selected, the degree interval reverts to the default, which is 3. This means that each of the chart's major intervals (specified above) is subdivided into three minor intervals.

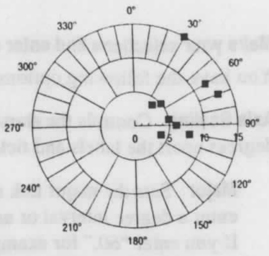
Start Controls at what degree the chart starts. You can enter a number between 0° (default) and 359° or click the direction arrows to scroll the numbers in 5-degree increments. The starting angle must be smaller than the ending angle. If "Label" is selected, the starting degree is displayed. If "Auto" is selected, the chart reverts to the default and begins at 0°.

End Controls at what degree the chart ends. You can enter a number between 1° and 360° (default) or click the direction arrows to scroll the numbers in 5-degree increments. The ending angle must be larger than the starting angle. If "Label" is selected, the ending degree is displayed. If "Auto" is selected, the chart reverts to the default and ends at 360°.

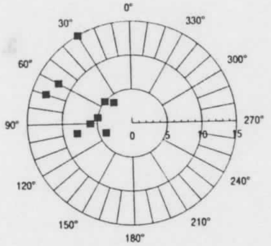
Angle Information Sets the angle from which the chart is viewed.

Reference Angle Rotates the chart by the number of degrees entered. You can enter a number between -360° and 360° or click the direction arrows to scroll the numbers in 5-degree increments.

Increasing Determines whether the chart angle increases clockwise (default) or counterclockwise. This selection also affects the position of the data series, as shown below.



CLOCKWISE



COUNTERCLOCKWISE

4. **Click "Show" to preview your changes without exiting the dialog.**

   This makes it easy to experiment with different effects. You can move the dialog out of the way by dragging the Title bar.

5. **When you have the results you want, click "OK" to implement the changes and return to the Chart window.**

   If you want to exit the dialog without changing the chart, click "Cancel."

Changing Tick Marks and Chart Grids

Tick marks are short marks on a chart's axis that show units of measurement. Major tick marks represent the principal increments of the scale; minor ticks represent the secondary divisions.

Chart grids are the lines that span the axes; they extend the measurement markings and make the chart easier to read. Value axes, such as the Z axis in Figure 7-3, have both major and minor grids; Category and Series axes have no minor grids. Major grids coincide with the major increments and tick marks on the axis, minor grids with the minor divisions and tick marks.

You can use the "Ticks and Grids" command in the Chart menu to open a dialog that lets you turn tick marks and chart grids on and off for each axis. (Default is on for all tick marks and Major grids.) You can also specify where on the selected axis you want tick marks to appear and how long you want them to be. In 3-D charts you have the additional option of being able to set tick marks at right angles to the selected axis. The "Set All..." command in the Chart menu allows you to change more than one axis at a time.

Figure 7-3 displays the types of tick marks and grids available to each axis. The name of each axis varies depending on the type of chart plotted.

To learn more about	**refer to**
The names of chart axes	"Understanding the Types of Charts" in Chapter 6

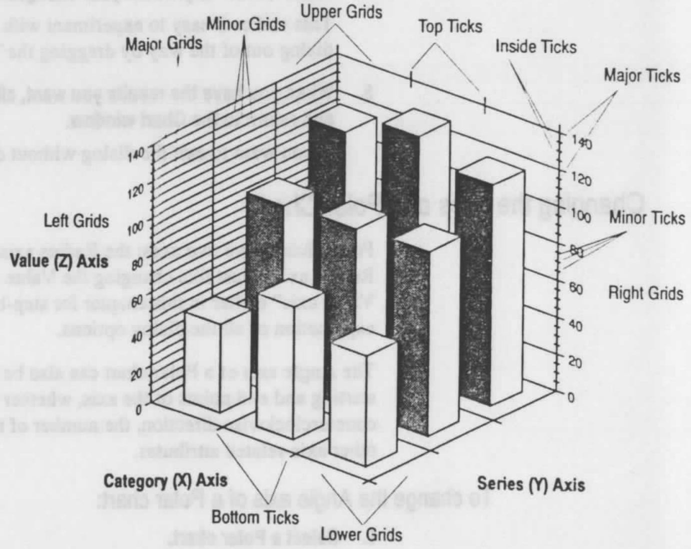


FIGURE 7-3. 3-D CHART TICK MARKS AND GRIDS

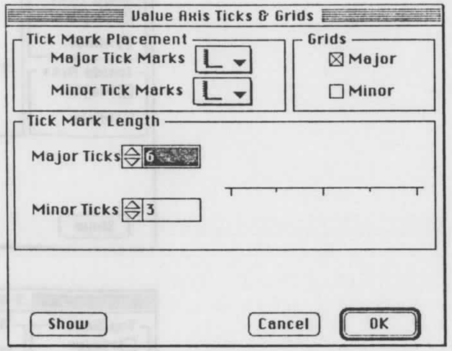
To change ticks and grids on a 2-D chart:

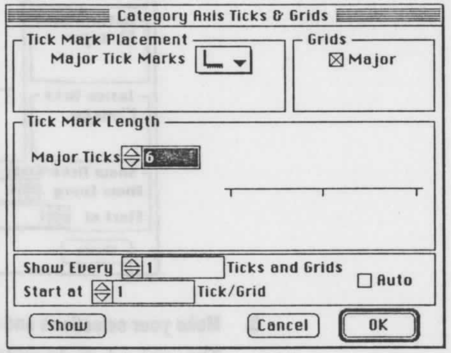
1. **Select a 2-D chart that uses ticks and grids.**

   Pie and Table charts do not use ticks and grid. Ticks for a Time Line chart are discussed directly after this procedure.

2. **Choose "Ticks and Grids" from the Chart menu and select an axis from the hierarchical menu.**

   A variation of one of the following "Axis Ticks & Grids" dialog appears, with defaults set as shown below. An X in a selection box indicates an option is on.



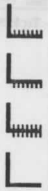


3. **Make your selections and enter data as needed.**

The mini-axis in the middle of the dialog reflects all the changes you make to tick settings. You have the following options for showing ticks and grids:

Tick Mark Placement Determines how you want the tick marks displayed on the axis.

Major/Minor Tick Marks Displays a pop-up menu with the following options:



Inside the axis.

(Default) Outside the axis.

On both sides of the axis.

No tick marks.

Grids Turns major or minor chart grids on or off.

Tick Mark Length Sets the length of major and minor tick marks in points. You can enter a value between 0 and 50 points or click the direction arrows to scroll the options.

Show Tick/Grids (Category axis only) Controls at what interval the major ticks and grids are displayed. For example: 1 = show every major tick/grid on the axis, 2 = show every other major tick/grid on the axis, etc. Enter an interval number in the entry box or click the direction arrows to scroll the options.

You can also specify where on the axis you want to begin displaying the ticks and grids. If "Auto" is selected, the chart reverts to the default and displays all major ticks and grids on the axis.

4. **Click "Show" to preview your changes without exiting the dialog.**

This makes it easy to experiment with different effects. You can move the dialog out of the way by dragging the Title bar.

5. **When you have the results you want, click "OK" to implement the changes and return to the Chart window.**

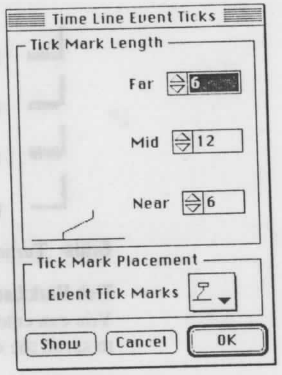
If you want to exit the dialog without changing the chart, click "Cancel."

To change Category ticks on a Time Line chart:

1. **Select a Time Line chart.**

2. Choose "Ticks and Grids" from the Chart menu and select "Category (Y)" from the hierarchical menu.

The following dialog appears, with defaults set as shown.



Far 6

Mid 12

Near 6

Event Tick Marks

3. Make your selections and enter data as needed.

You have the following options for showing ticks and grids:

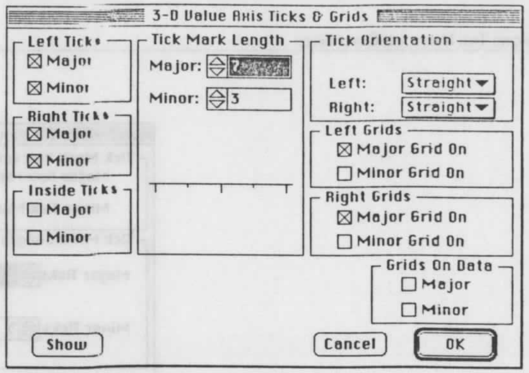
Tick Mark Length Changes the length of the Category ticks. To change the length of a segment, enter a point size or click the direction arrows to scroll through the values. The mini-axis in the middle of the dialog reflects changes you make to tick settings.

Tick Mark Placement Displays a pop-up menu so you can display the series labels either above or below the Time Line.

To change ticks and grids on a 3-D chart:

1. Select any 3-D chart.
2. Choose "Ticks and Grids" from the Chart menu and select an axis from the hierarchical menu.

A variation of one of the following "3-D Axis Ticks & Grids" dialog appears, with defaults set as shown below. An X in a selection box indicates an option is on.



Left Ticks: ☒ Major ☒ Minor

Right Ticks: ☒ Major ☒ Minor

Inside Ticks: ☐ Major ☐ Minor

Major: 7

Minor: 3

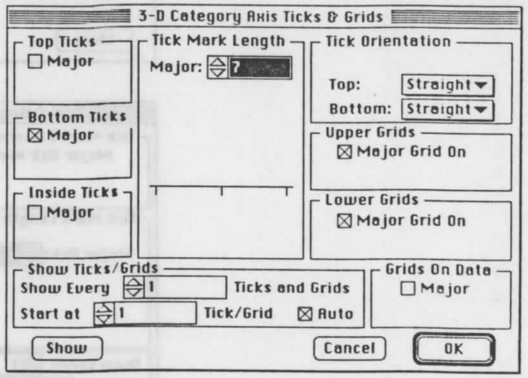
Left: Straight

Right: Straight

Left Grids: ☒ Major Grid On ☐ Minor Grid On

Right Grids: ☒ Major Grid On ☐ Minor Grid On

Grids On Data: ☐ Major ☐ Minor



Top Ticks: ☐ Major

Bottom Ticks: ☒ Major

Inside Ticks: ☐ Major

Major: 7

Top: Straight

Bottom: Straight

Upper Grids: ☒ Major Grid On

Lower Grids: ☒ Major Grid On

Show Every 1 Ticks and Grids

Start at 1 Tick/Grid ☒ Auto

Grids On Data: ☐ Major

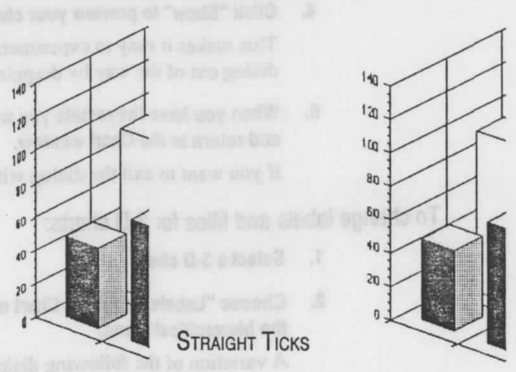
3. **Make your selections and enter data as needed.**

The mini-axis in the middle of the dialog reflects all the changes you make to tick settings, with the exception of orientation. You have the following options for showing ticks and grids:

Left/Right/Inside Ticks or Top/Bottom/Inside Ticks Turns major and minor tick marks on or off for the designated axes of a 3-D chart. Only the Value axis has minor tick marks and grids.

Tick Mark Length Sets the length of major and minor tick marks in points. You can enter a value between 0 and 50 points or click the direction arrows to scroll the options.

Tick Orientation Displays a pop-up menu so you can change the angle of the ticks relative to the axis for the left and right sides of a 3-D chart. Choose from "Straight" (default) or "90 Deg."



STRAIGHT TICKS 90° TICKS

Left/Right Grids or Upper/Lower Grids Turns designated grids on or off.

Show Ticks/Grids (Category and Series axis only) Controls at what interval the major ticks and grids are displayed. For example: 1 = show every major tick/grid on the axis, 2 = show every other major tick/grid on the axis, etc. Enter an interval number in the entry box or click the direction arrows to scroll the options.

You can also specify where on the axis you want to begin displaying the ticks and grids. If "Auto" is selected, the chart reverts to the default and displays all major ticks and grids on the axis.

Grids On Data (not all charts) Shows the grids on the chart's data graphics.

4. **Click "Show" to preview your changes without exiting the dialog.**

   This makes it easy to experiment with different effects. You can move the dialog out of the way by dragging the Title bar.

5. **When you have the results you want, click "OK" to implement the changes and return to the Chart window.**

   If you want to exit the dialog without changing the chart, click "Cancel."

Creating and Positioning Axis Labels and Titles

3-D charts can have labels and titles on three axes, whereas 2-D charts can only have labels and titles on two axes (the Z axis or Series sometimes appears as a legend).

Axis labels are text or numbers that identify what is measured on each axis of a chart. Labels are entered in the originating Data page; where on the page depends on the type of chart you are plotting. You can move and reformat axis labels from the Chart window, but can edit them in the Data page only.

Axis titles, which are used to name a chart's axis, are created and edited in the Chart window.

When DELTAGRAPH draws a chart, it automatically calculates the space required for the axis labels and positions them to provide the best fit and legibility.

You can use the "Labels" command in the Chart menu to open a dialog that lets you change the default ("Auto") orientation and rotation of all the labels on the selected axis. (Each axis must be changed separately.) You can also create and position axis titles from within this dialog. The "Set All..." command in the Chart menu allows you to change more than one axis at a time.

If you want to change the default size, font, style, or alignment of chart text (which may change the "Auto" orientation and rotation of a chart's labels and titles), choose "Preferences" from the Edit menu.

To learn more about	**refer to**
The names of chart axes	"Understanding the Types of Charts" in Chapter 6
Changing chart defaults	"Setting Chart Default Preferences" in Chapter 6

To change labels and titles for 2-D charts:

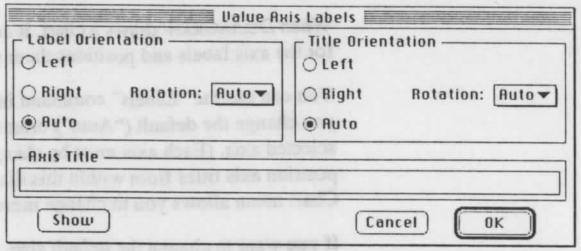
1. **Select a 2-D chart.**

   Some charts (such as Polar, Pie, or Table charts) may not have labels you can change.

2. **Choose "Labels" from the Chart menu and select the appropriate axis from the hierarchical menu.**

   A variation of the following dialog appears. The available options depend on the chart type selected. The defaults selections always say "Auto," but the meaning of "Auto" depends on the type of chart selected and the length of the axis' title or longest label. Rotation is typically 0° unless a title or more of the labels won't fit on one line.

   Note: Selecting the "Double-click on the charts" option in the "Preferences" dialog (choose "Preferences" from the Edit menu to open) allows you to double-click on an axis label to open the corresponding "Labels" dialog.



3. **Make your selections and enter data as needed.**

   You have the following options:

   Label/Title Orientation Determines the position (left or right, top or bottom) of the labels or title for the axis selected. "Rotation" displays a pop-up menu with the following options:

   Auto Default position for the chart selected. (DELTAGRAPH automatically calculates the space required for the axis labels/titles and orients them to provide the best fit and legibility.) If you select another option and a label or title will not fit on one line, the text wraps to add more lines as needed. Resizing the chart or changing the text attributes may change the "Auto" orientation.

   0° Displays normal right-side-up position. Do not use this option if you are outputting to a PostScript device.

   90° Rotates clockwise 90° from the 0° position.

   180° Rotates clockwise 180° from the 0° position (upside down).

   270° Rotates clockwise 270° from the 0° position.

   Off Does not display labels/title.

   Axis Title Enter a name for the axis in the entry box below "Axis Title."

4. **Click "Show" to preview your changes without exiting the dialog.**

   This makes it easy to experiment with different effects. You can move the dialog out of the way by dragging the Title bar.

5. **When you have the results you want, click "OK" to implement the changes and return to the Chart window.**

   If you want to exit the dialog without changing the chart, click "Cancel."

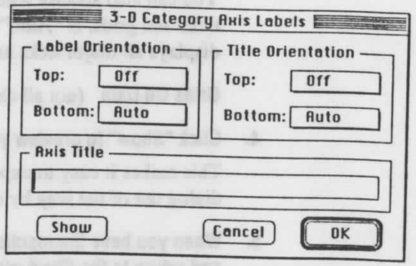
To change labels and titles for 3-D charts:

1. **Select a 3-D chart.**

2. **Choose "Labels" from the Chart menu and select the appropriate axis from the hierarchical menu.**

   A variation of the following dialog appears. The available options depend on the chart type selected. The defaults selections depend on the type of chart selected and the length of the axis' title or longest label. If "Default to perspective labels" is deactivated in the "Preferences" dialog, the rotation default will be 0°.

   Note: Selecting the "Double-click on the charts" option in the "Preferences" dialog (choose "Preferences" from the Edit menu to open) allows you to double-click on an axis label to open the corresponding "Labels" dialog.



3. **Make your selections and enter data as needed.**

   You have the following options:

   Label/Title Orientation Determines the position (left or right, top or bottom) of the labels or title for the axis selected. "Rotation" displays a pop-up menu with the following options:

Off Does not display labels/title.

Auto Default position for the chart selected. (DeltaGraph automatically calculates the space required for the axis labels/titles and orients them to provide the best fit and legibility.) If you select another option and a label or title will not fit on one line, the text wraps to add more lines as needed. Resizing the chart or changing the text attributes may change the "Auto" orientation.

0° This position varies depending on the axis. Do not use this option if you are outputting to a PostScript device.

90° Rotates clockwise 90° from the 0° position.

180° Rotates clockwise 180° from the 0° position

270° Rotates clockwise 270° from the 0° position.

Special (Category/Series axes only) Labels appear to stand up on end.

Axis Title Enter a name for the axis in the entry box below "Axis Title."

4. **Click "Show" to preview your changes without exiting the dialog.**

   This makes it easy to experiment with different effects. You can move the dialog out of the way by dragging the Title bar.

5. **When you have the results you want, click "OK" to implement the changes and return to the Chart window.**

   If you want to exit the dialog without changing the chart, click "Cancel."

Formatting Chart Text

You can change the font, size, style, and color of any selected chart label(s) or axis title(s) with commands from the Text menu. (The default for chart text, unless you change it in the "Preferences" dialog, is 12-point Helvetica, plain, black.)

You can also use Text menu commands to add an offset duplicate image to selected text, realign text in a Table chart, or temporarily hide selected chart labels or axis titles.

To edit the wording of a label, you must change it in the originating Data or Text page, then update the chart; to edit the wording of an axis title, double-click on it and make the change in the "Labels" dialog that appears.

To learn more about	refer to
Commands in the Text menu	"Text Menu" in Chapter 16
Changing chart defaults	"Setting Chart Default Preferences" in Chapter 6
Creating axis titles	"Creating and Positioning Axis Labels and Titles," earlier in this chapter
The Preferences dialog	"Setting Chart Default Preferences" in Chapter 6
Editing data in a Data page	"Editing Data" in Chapter 4
Editing data in a Text page	"Entering and Editing Your Data" in Chapter 5

To format chart text:

1. **Select a chart.**

   If you want to make the same change(s) to all the chart text, skip down to step 3.

2. **Click on the axis title or on any label in a group of labels you want to change.**

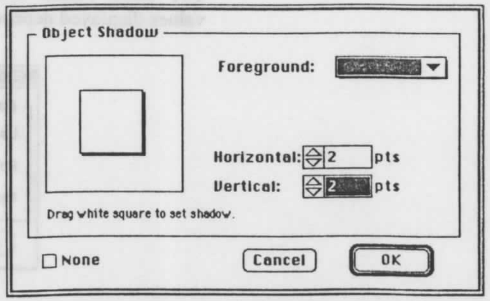
   If you want to change just one label within a group of labels, click again on that label to select it.

3. **Select commands from the Text menu as needed and make your choices from the hierarchical menus that appear.**

   The selected text changes according to your choice. In addition to the standard "Font," "Size," and "Style," commands you have the following options:

   Alignment Changes text placement in Table charts only.

   Shadow... Displays a dialog so you can apply an offset duplicate image of selected text. This option also appears as "Drop Shadow" in the "Set All" dialog.



Horizontal: 2 pts

Vertical: 2 pts

To create a shadow, click on the square on the left side of the dialog and drag it, enter a point size, or click the direction arrows to scroll through the values. To color the shadow, press on the "Foreground" pop-up menu to select a color from the palette.

Hidden Hides selected text — a label or series of labels, for example — within a Chart object. This is useful when you don't want to delete the label but don't want it displayed or printed.

Set All... Displays a dialog so you can set several text attributes in one step for one or more selected elements.

Showing Values on a 2-D Chart

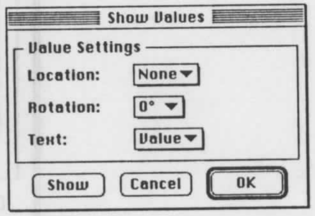
Occasionally you will want to label the data graphics in a chart. For example, you might want to add numeric values and/or percents to each piece of a Pie chart, to show what percentage of the whole each column in a Column chart represents, or to add category labels to a chart that has no Category axis.

The "Show Values..." command in the Chart menu displays a dialog so you can automatically add labels that reflect information entered in the Data page to the data graphics in any of the following 2-D charts: Column, Stacked Column, Bar, Stacked Bar, Line, Step, Pie, Stacked Pie, Multiple Pie, Scatter, Paired Scatter, X-Y Line, Paired X-Y Line, XYZ Contour Line, Bubble, Polar, Ternary, and Spider.

To show values on a chart:

1. **Select one of the charts listed above.**
2. **Choose "Show Values..." from the Chart menu.**

   The "Show Values" dialog appears. The available options and default values displayed depend on the type of chart selected.



Location: None

Rotation: 0°

Text: Value

3. **Make your selections and enter data as needed.**

   You have the following options:

Location Displays a pop-up menu so you can specify where the labels appear in relation to the data graphics. The options vary according to the type of chart selected.

For Column, Stacked Column, Bar, and Stacked Bar charts, the options are:

None	(Default) No labels showing.
At Axis	Places labels next to axis on each data graphic.
Middle	Places labels in middle of each data graphic.
At End	Places labels at the end of each data graphic.
Outside	Places labels outside each data graphic at the far end.

For Pie, Stacked Pie, and Multiple Pie charts, the options are:

None	No labels showing.
Outside	(Default) Places labels outside each data graphic.
Inside	Places labels inside each data graphic.

For Line, Step, Paired Scatter, Scatter, X-Y Line, Paired X-Y Line, Bubble, Ternary, and Polar charts, the options are:

None	(Default for all but Bubble charts) No labels showing.
Above	Places labels above each data symbol.
Below	Places labels below each data symbol.
Left	Places labels to the left of each data symbol.
Right	Places labels to the right of each data symbol.
On	(Default for Bubble charts) Places labels directly on each data symbol. For best results when using this option on any chart but a Bubble chart, de-select "Show Symbols" in the "Options" dialog (select "Options..." from the Chart menu).

Rotation Displays a pop-up menu so you can specify the orientation of the data graphic labels. You have the following options:

0° Labels are in default position, typically horizontal as in normal text orientation.

90° Rotates labels 90° from 0°, typically vertical and reading from top to bottom.

180° Rotates labels 180° from 0°, typically upside-down.

270° Rotates labels 270° from 0°, typically vertical and reading from bottom to top.

Text Displays a pop-up menu so you can format the text. You have the following options:

Value (Default for all but Pie charts) The numeric value of each data graphic as entered in the Data page.

Percent The numeric value of each data graphic translated into its percentage of the whole.

Category (Default for all Pie charts) The row labels from the Data page.

Value (Percent) The numeric value of each data graphic *and* its percentage of the whole.

Category (Percent) The row labels from the Data page and their numeric values translated into their percentage of the whole.

4. **Click "Show" to preview your changes without exiting the dialog.**

   This makes it easy to experiment with different effects. You can move the dialog out of the way by dragging the Title bar.

5. **When you have the results you want, click "OK" to implement the changes and return to the Chart window.**

   If you want to exit the dialog without changing the chart, click "Cancel."

Changing Chart Symbols

In DeltaGraph, symbols are used to represent data series in Line, High-Low, Range, Step, Scatter, Paired Scatter, X-Y Line, Paired X-Y Line, 3-D Scatter, Ternary, Polar, and Bullet charts. The "Symbols..." command in the Chart menu displays a dialog so you can choose different symbols and/or change their size and color.

Using DeltaSymbol

DeltaSymbol is a special QuickDraw symbol font included with DeltaGraph. If you install the DeltaSymbol font into your System, these symbol characters are generated automatically when the chart is created. If the DeltaSymbol font is not in your System file, the default font becomes Zapf Dingbats. If you do not have either font, the System chooses from the fonts available.

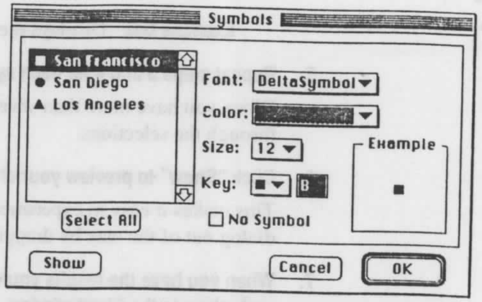
To learn more about	**refer to**
Installing DeltaSymbol	"Installing DeltaSymbol" in Chapter 1

Note: If you use a PostScript printer, be sure to place the PostScript outline version of DeltaSymbol, called DeltaSym, into your System folder. This enables most PostScript printers to download the PostScript commands for the font into the printer automatically.

To change chart symbols:

1. **Select a chart that uses symbols.**
2. **Choose "Symbols..." from the Chart menu.**

   The "Symbols" dialog appears, showing the default symbol (and its size and color) for each data series.


■ San Francisco
● San Diego
▲ Los Angeles
Font: DeltaSymbol
Size: 12
Key: ■ B
☐ No Symbol

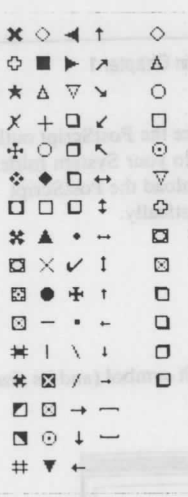
3. **Select the symbol/data series you want to change from the list on the left side of the dialog.**

   To make all the symbols the same, click "Select All" toward the bottom of the dialog.

Note: For High-Low and Range charts: because you change the symbols for the different ranges in each data series separately, there is an extra set of selection buttons in the dialogs for these charts. You must click "High (the default)," "Low," or "Middle" (for Range charts only) to select which range of symbols you want to change.

4. **Make your selections as needed.**

   You have the following options:



Font Displays a pop-up menu so you can select a font for the selected symbol. You can choose from all the fonts in your System file. The default font, if installed in your System, is "DeltaSymbol."

Color Displays a pop-up menu so you can select a color for the selected symbol.

Size Displays a pop-up menu so you can select a size for the selected symbol. The "Other..." option displays a dialog so you can enter a non-standard point size for the font.

Key Displays a pop-up menu so you can select a symbol. Every available symbol is displayed. The symbols on the right side of the menu are transparent (see-through) symbols. The standard alphabet character representing the selected symbol appears in the entry box next to the menu.

If you don't want any symbol for a data series, select "No Symbol."

Example box Displays the selected symbol for the selected data series.

5. **Repeat steps 3 and 4 for each symbol you want to change.**

   When you have more than seven data series, use the scroll bar to move through the selections.

6. **Click "Show" to preview your changes without exiting the dialog.**

   This makes it easy to experiment with different effects. You can move the dialog out of the way by dragging the Title bar.

7. **When you have the results you want, click "OK" to implement the changes and return to the Chart window.**

   If you want to exit the dialog without changing the chart, click "Cancel."

Working with 3-D View

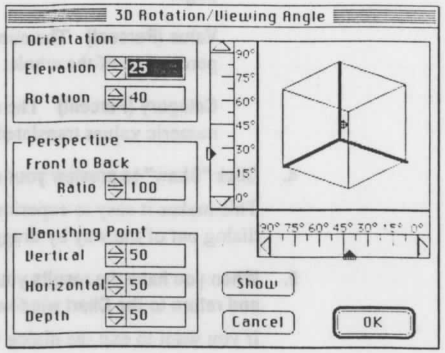
If you want to change the orientation, perspective, and/or vanishing point of a 3-D chart, you can choose "3-D View..." from the Chart menu (⌘–R). This opens a dialog that includes an interactive graphic display so you can visualize your changes as you make them. Use the dialog's "Show" button to experiment with different settings.

Once you've implemented a change, you can use the "Change Type..." command in the Chart menu to change the chart back to its original view. Just choose the same chart type from the dialog that appears.

To change the view of a 3-D chart:

1. **Select any 3-D chart.**
2. **Choose "3-D View..." from the Chart menu or type ⌘–R**

   The "3-D Rotation Viewing Angle" dialog appears, with defaults set as shown.



Elevation 25
Rotation 40
Ratio 100
Vertical 50
Horizontal 50
Depth 50

3. **Make your selections and enter data as needed.**

   As you change these values, the graphic cube in the upper right-hand corner of the dialog moves to reflect your choices. You have the following options:

Orientation (Measured in degrees) Controls the chart's vertical viewing angle ("Elevation") and horizontal viewing angle ("Rotation") relative to the eye.

To change either setting, enter a number from 0° to 90°, click the direction arrows to scroll through the values in 5-degree increments, drag the vertical and horizontal slide markers in the adjusting bar next to the graphic cube, or click on the arrows at each end of the adjusting bar to change the elevation.

Perspective (Measured in percents) Controls the apparent distance of the back of the chart relative to the front. At 100% (default), the size of the back is equal to the size of the front. At 50%, the size of the back is one-half the size of the front.

To change the perspective, enter a number from 20% to 100% or click the direction arrows to scroll through the values in 5-percent increments.

Vanishing Point (Measured in percents) Controls the point on the chart that the eye is looking through.

The default settings for the Vertical, Horizontal, and Depth vanishing points are always 50, the middle of the chart; but the effect that these settings have on your chart is relative to the "Orientation" and "Perspective" settings.

To change the vanishing points, enter a number from 0% to 100% or click the direction arrows to scroll through the values in 5-percent increments.

4. **Click "Show" to preview your changes without exiting the dialog.**

   This makes it easy to experiment with different effects. You can move the dialog out of the way by dragging the Title bar.

5. **When you have the results you want, click "OK" to implement the changes and return to the Chart window.**

   If you want to exit the dialog without changing the chart, click "Cancel."

Adding Depth to a 2-D Chart

If you want to add depth (see Fig. 7-4) planes to the data graphics of a Column, Stacked Column, Bar, Stacked Bar, Bubble, Area, Pie, or Multiple Pie chart, choose "Depth..." from the Chart menu. This opens a dialog that includes an interactive graphic display so you can visualize your changes as you make them.

To add depth to a 2-D chart:

1. **Select one of the 2-D charts listed above.**
2. **Choose "Depth..." from the Chart menu.**

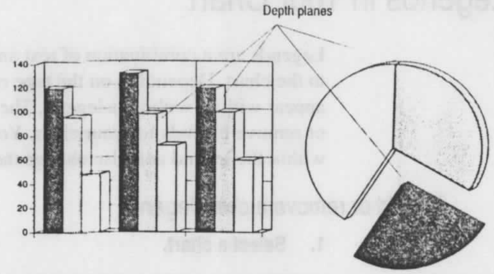
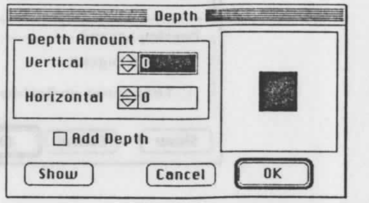


Figure 7-4. 2-D Chart Depth Planes

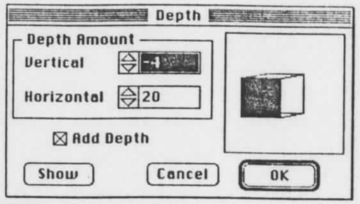
The "Depth" dialog appears, with defaults set as shown in the dialog on the left. The black box is part of a cube that represents the chart's data graphic. As you can see in the dialog on the right, when you change the depth settings, the black box moves to reveal the rest of the cube; the outline represents the depth plane.



Vertical 0

Horizontal 0

☐ Add Depth



Vertical -4

Horizontal 20

☒ Add Depth

3. **Use one of the following methods to add depth planes to your chart.**

   You can enter any number from -250 to 250 points in the entry boxes next to "Vertical" and "Horizontal," click the direction arrows to scroll the options, or drag the graphic cube itself to the desired position

   If you modify the numbers, the cube moves to reflect your changes; if you manipulate the cube, the numbers change accordingly.

   To remove depth from a 2-D chart, de-select the "Add Depth" option.

4. **Click "Show" to preview your changes without exiting the dialog.**

   This makes it easy to experiment with different effects. You can move the dialog out of the way by dragging the Title bar.

5. **When you have the results you want, click "OK" to implement the changes and return to the Chart window.**

   If you want to exit the dialog without changing the chart, click "Cancel."

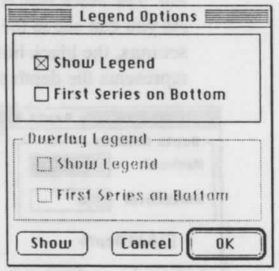
Using Legends in Your Chart

Legends are a combination of text and graphics used to associate additional data to the chart. Depending on the type of chart you have plotted, some charts may appear with or without a legend. The "Legend..." command allows you to add to or remove legends for your chart. You can also reverse the direction of the data within the legend and also change the legend for any overlay charts.

To add or remove a chart legend:

1. **Select a chart.**
2. **Choose "Legend..." from the Chart menu.**

   The following dialog appears. If the chart contains an overlay chart, the bottom portion of the dialog is also active.



☒ Show Legend
☐ First Series on Bottom

☐ Show Legend
☐ First Series on Bottom

3. **Make your selections as needed.**

   You have the following options:

   Show Legend Turns chart legend on or off. The default for this option varies depending on chart type.

   First Series on Bottom Reverses the order of the legend.

4. **Click "Show" to preview your changes without exiting the dialog.**

   This makes it easy to experiment with different effects. You can move the dialog out of the way by dragging the Title bar.

5. **When you have the results you want, click "OK" to implement the changes and return to the Chart window.**

   If you want to exit the dialog without changing the chart, click "Cancel."

8 Using the "Options..." Command

The "Options..." command (⌘–Y) in the Chart menu makes it easy to customize your charts. Available only when you have a chart selected, this command displays a dialog that offers numerous options for changing the appearance and/or organization of the selected chart. The options available in the dialog depend on the chart selected. Each dialog contains a "Show" button which allows you to experiment with different options without permanently changing the chart.

This chapter covers:

- Showing/hiding grids, frames, and symbols
- Adjusting the width of and space between bars in Bar and Column charts
- Rotating elements within charts
- Switching axes
- Repositioning labels
- Removing axis planes from 3-D charts
- Adjusting the wall thickness on 3-D charts
- Sizing bubbles on Bubble charts
- Creating and removing projected ticks and labels
- Dropping lines from symbols to the base of the chart
- Clipping off data outside of the chart grid
- Changing the direction of Ternary and Polar charts
- Creating margins in Organizational charts, etc.

These are just a few of the options available to the charts within DeltaGraph.

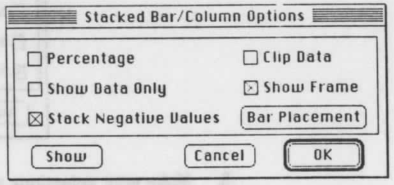
2-D Chart Options

Bar and Column Chart Options

To set options for Bar, Stacked Bar, Column, and Stacked Column charts:

1. **Select one of the charts listed above.**
2. **Choose "Options..." from the Chart menu or type ⌘–Y.**

   A variation of the following dialog appears, with defaults set as shown below. An X in a selection box indicates the option is on.



☐ Percentage
☐ Clip Data
☐ Show Data Only
☒ Show Frame
☒ Stack Negative Values

3. **Make your selections as needed.**

   You have the following options:

   Percentage Changes the value axis and shows each data graphic as a percentage of the whole; the bottom Value axis label changes to 0 and the top value changes to 1.

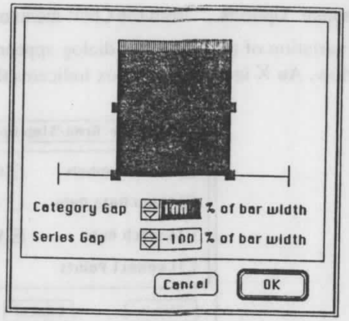
   Clip Data Hides or "clips off" any data plotted outside the chart grids.

   Show Data Only Displays only the data graphics, hiding all other chart elements including the frame.

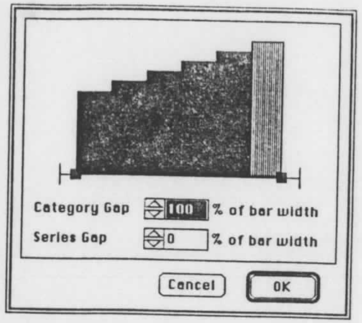
   Show Frame Provides a back plane to the chart. This option does not have any affect on the grid. This option must be selected if you want to fill the chart with a pattern or color or use a shadow.

   Stack Negative Values (Stacked Column and Stacked Bar charts only) Includes negative values on the Value axis.

   Bar Placement Displays a dialog so you can control how the data graphics are displayed. If you select "Bar Placement" one of the following dialog appear. The graphic reflects the number of data series in your chart.



Category Gap 100 % of bar width
Series Gap -100 % of bar width



Category Gap 100 % of bar width
Series Gap 0 % of bar width

Category Gap Controls the space between data graphics and the grid lines on the category axis based on a percentage of the bar width. To change the Category Gap, you can drag the lower bar-sizing handles (squares), enter any value between 0 and 1000, or click the direction arrows to scroll through the percentage options.

Series Gap Controls the space between each data graphic based on a percentage of the bar width. To change the Series Gap, you can drag the upper bar-sizing handles (squares), enter any number between 0 and 1000, or click the direction arrows to scroll through the percentage options.

4. **Click "Show" to preview your changes without exiting the dialog.**

   This makes it easy to experiment with different effects. You can move the dialog out of the way by dragging the Title bar.

5. **When you have the results you want, click "OK" to implement the changes and return to the Chart window.**

   If you want to exit the dialog without changing the chart, click "Cancel."

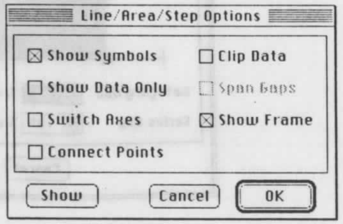
Line, Area, and Step Chart Options

To set options for Line, Area, and Step charts:

1. **Select one of the charts listed above.**

2. **Choose "Options..." from the Chart menu or type ⌘-Y.**

   A variation of the following dialog appears, with defaults set as shown below. An X in a selection box indicates the option is on.



☒ Show Symbols
☐ Clip Data
☐ Show Data Only
☐ Span Gaps
☐ Switch Axes
☒ Show Frame
☐ Connect Points

3. **Make your selections as needed.**

   You have the following options:

   Show Symbols (Line and Step charts only) Displays data symbols on the chart.

   Clip Data Hides or "clips off" any data plotted outside the chart grids.

   Show Data Only Displays only the data graphics, hiding all other chart elements including the frame.

   Span Gaps (Line and Step charts only) Draws connecting lines through any missing data points. Each line is drawn from the last data point before the missing data to the first data point after the missing data. "Connect Points" must be selected in order to activate the "Span Gaps" option.

   Switch Axes Reverses the position of the two axes.

   Show Frame Provides a back plane to the chart. This option does not have any affect on the grid. This option must be selected if you want to fill the chart with a pattern or color or use a shadow.

   Connect Points (Line and Step charts only) Connects all data points of the same series from one end of the axis to the other.

4. **Click "Show" to preview your changes without exiting the dialog.**

   This makes it easy to experiment with different effects. You can move the dialog out of the way by dragging the Title bar.

5. **When you have the results you want, click "OK" to implement the changes and return to the Chart window.**

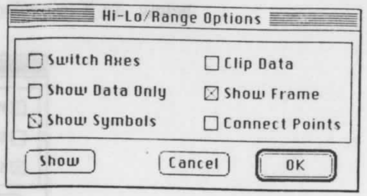
   If you want to exit the dialog without changing the chart, click "Cancel."

High-Low and Range Chart Options

To set options for High-Low and Range charts:

1. **Select one of the charts listed above.**
2. **Choose "Options..." from the Chart menu or type ⌘-Y.**

   The following dialog appears, with defaults set as shown below. An X in a selection box indicates the option is on.



☐ Switch Axes
☐ Clip Data
☐ Show Data Only
☒ Show Frame
☒ Show Symbols
☐ Connect Points

3. **Make your selections as needed.**

   You have the following options:

   Switch Axes Reverses the position of the two axes.

   Clip Data Hides or "clips off" any data plotted outside the chart grids.

   Show Data Only Displays only the data graphics, hiding all other chart elements including the frame.

   Show Frame Provides a back plane to the chart. This option does not have any affect on the grid. This option must be selected if you want to fill the chart with a pattern or color or use a shadow.

   Show Symbols Displays data symbols on the chart

   Connect Points (Range charts only.) Connects all data points of the same series from one end of the axis to the other.

4. **Click "Show" to preview your changes without exiting the dialog.**

   This makes it easy to experiment with different effects. You can move the dialog out of the way by dragging the Title bar.

5. **When you have the results you want, click "OK" to implement the changes and return to the Chart window.**

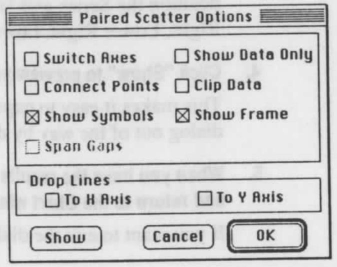
   If you want to exit the dialog without changing the chart, click "Cancel."

Scatter and X-Y Line Chart Options

To set options for Scatter, Paired Scattered, X-Y Line, and Paired X-Y Line charts:

1. **Select one of the charts listed above.**
2. **Choose "Options..." from the Chart menu or type ⌘–Y.**

   A variation of the following dialog appears, with default settings dependent upon the type of chart selected. An X in a selection box indicates the option is on.



☐ Switch Axes ☐ Show Data Only
☐ Connect Points ☐ Clip Data
☒ Show Symbols ☒ Show Frame
☐ Span Gaps

Drop Lines
☐ To X Axis ☐ To Y Axis

3. **Make your selections as needed.**

   You have the following options. Defaults for all options within the dialog are "off" unless otherwise noted.

   Switch Axes Reverses the position of the two axes.

   Show Data Only Displays only the data graphics, hiding all other chart elements including the frame.

   Connect Points Connects all data points of the same series. (Default for both X-Y charts is "on.")

   In Scatter charts the data points are connected in the order selected from the Data page.

   In X-Y Line charts the data points are connected from one end of the axis to the other.

   Clip Data Hides or "clips off" any data plotted outside the chart grids.

   Show Symbols Displays data symbols on the chart. (Default for both Scatter charts is "on.")

Show Frame Provides a back plane to the chart. This option does not have any affect on the grid. This option must be selected if you want to fill the chart with a pattern or color or use a shadow.

Span Gaps Draws connecting lines through any missing data points. Each line is drawn from the last data point before the missing data to the first data point after the missing data. "Connect Points" must be selected in order to activate the "Span Gaps" option.

Drop Lines Drops a line from each data symbol to the X and/or Y axis.

4. **Click "Show" to preview your changes without exiting the dialog.**

   This makes it easy to experiment with different effects. You can move the dialog out of the way by dragging the Title bar.

5. **When you have the results you want, click "OK" to implement the changes and return to the Chart window.**

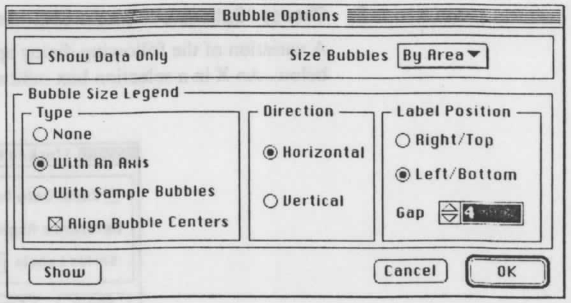
   If you want to exit the dialog without changing the chart, click "Cancel."

Bubble Chart Options

To set options for a Bubble chart:

1. **Select a Bubble chart.**
2. **Choose "Options..." from the Chart menu or type ⌘–Y.**

   The following dialog appears, with defaults set as shown below. An X in a selection box or a highlighted button indicates the option is on.



☐ Show Data Only
Size Bubbles: By Area

Bubble Size Legend
Type
○ None
● With An Axis
○ With Sample Bubbles
☒ Align Bubble Centers

Direction
● Horizontal
○ Vertical

Label Position
○ Right/Top
● Left/Bottom
Gap: 4

3. **Make your selections as needed.**

   You have the following options:

Show Data Only Displays only the data graphics, hiding all other chart elements including the frame.

Size Bubbles Displays a pop-up menu so you can size the chart's bubbles Linearly (size is proportionate to the data value), By Volume, or By Area.

Bubble Size Legend Rotates the Bubble axis legend horizontally or vertically.

Type Determines the type of legend created. You can choose between an axis with ticks or a legend containing sample bubbles. "Align Bubble Centers" aligns the sample bubble centers in the legend.

Direction Determines the direction of the axis.

Label Position Determines the position of the labels within the legend.

4. **Click "Show" to preview your changes without exiting the dialog.**

   This makes it easy to experiment with different effects. You can move the dialog out of the way by dragging the Title bar.

5. **When you have the results you want, click "OK" to implement the changes and return to the Chart window.**

   If you want to exit the dialog without changing the chart, click "Cancel."

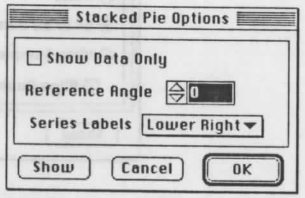
Pie and Stacked Pie Chart Options

To set options for Pie and Stacked Pie charts:

1. **Select one of the charts listed above.**

2. **Choose "Options..." from the Chart menu or type ⌘–Y.**

   A variation of the following dialog appears, with defaults set as shown below. An X in a selection box indicates the option is on.



☐ Show Data Only

Reference Angle 0

Series Labels Lower Right

3. **Make your selections and enter data as needed.**

   You have the following options:

   Show Data Only Displays only the data graphics, hiding all other chart elements including the frame.

   Reference Angle Rotates the pie by the number of degrees entered. To change the reference angle, you can enter a value between -360° and 360° or click the direction arrows to scroll the numbers in 10-degree increments.

   Series Labels (Stacked Pie charts only) Displays a pop-up menu so you can position the Series axis labels in reference to the pie. Options are: Upper Right, Lower Right, Lower Left, Upper Left, and None.

4. **Click "Show" to preview your changes without exiting the dialog.**

   This makes it easy to experiment with different effects. You can move the dialog out of the way by dragging the Title bar.

5. **When you have the results you want, click "OK" to implement the changes and return to the Chart window.**

   If you want to exit the dialog without changing the chart, click "Cancel."

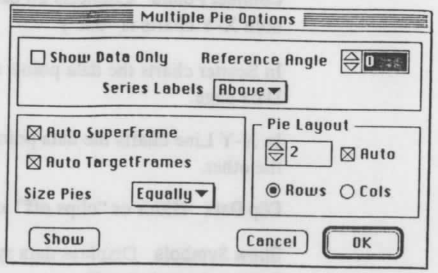
Multiple Pie Chart Options

To set options for a Multiple Pie chart:

1. **Select a Multiple Pie chart.**

2. **Choose "Options..." from the Chart menu or type ⌘–Y.**

   A variation of the following dialog appears, with defaults set as shown below. An X in a selection box or a highlighted button indicates the option is on.



☐ Show Data Only

Reference Angle 0

Series Labels Above

☒ Auto SuperFrame

☒ Auto TargetFrames

Size Pies Equally

2 ☒ Auto

● Rows ○ Cols

3. **Make your selections and enter data as needed.**

   You have the following options:

   Show Data Only Shows only the data graphics, hiding all other chart elements including the frame.

   Reference Angle Rotates all pies by the number of degrees entered. To change the reference angle, you can enter a value between -360° and 360° or click the direction arrows to scroll the numbers in 10-degree increments.

   Series Labels Displays a pop-up menu so you can position the Series axis labels in reference to each pie. Options are: Above, Below, or None.

   Auto SuperFrame DELTAGRAPH automatically sizes the grid structure containing all the pies (the SuperFrame) so that it comes as closely as possible to being a square. If you resize the SuperFrame by dragging one of the sizing handles (large box at the upper-left and lower-right corners), this option (and "Auto TargetFrames") is de-selected. To revert the frame back to its original size, re-select this option *and* "Auto TargetFrames."

   Auto TargetFrames DELTAGRAPH automatically determines the size of the grid structure containing each pie (a TargetFrame) based on the size of the largest pie. To change the size of the pies, click on the TargetFrame handle and drag. All of the pies are proportionally resized. To constrain the pie shape to a square, use Shift-drag. To revert the TargetFrame(s) back to their original size, re-select this option *and* "Auto SuperFrame."

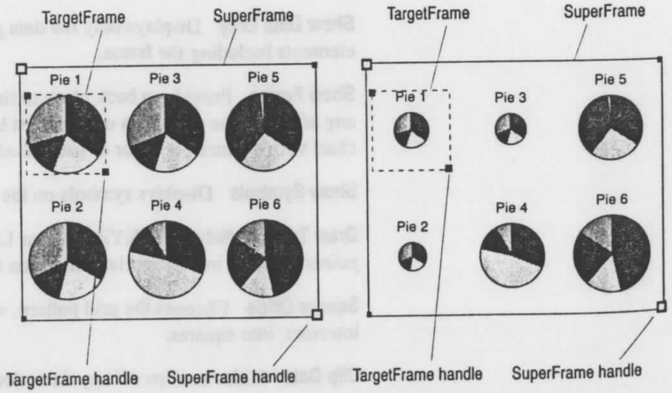


FIGURE 8-1. MULTIPLE PIE CHART SUPERFRAME

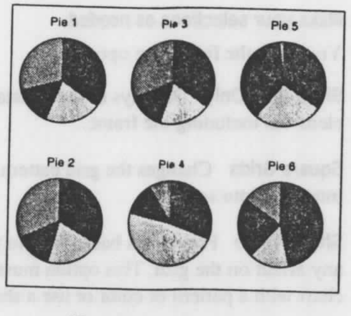
   Size Pies Displays a pop-up menu so you can size the pies:

   Equally Every pie is the same size (diagram on the left),

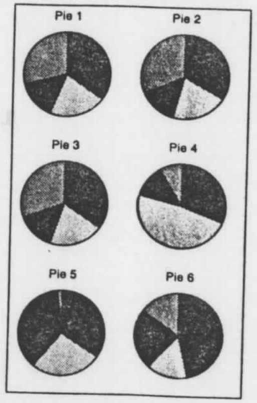
   By Radius Pies are scaled proportionately based on the radius of the largest pie (diagram on the right), or

   By Area Pies are scaled proportionately based on the area of the largest pie.

   Pie Layout Controls how the pies are arranged in the chart. You can choose to display the pies in rows or columns, then enter the number of rows or columns you want. "Auto," the default, arranges the pies in rows — as many as needed to accommodate the number of pies in the chart while coming as close as possible to creating a square shape for the SuperFrame.



TWO ROWS (DEFAULT)



TWO COLUMNS

4. **Click "Show" to preview your changes without exiting the dialog.**

   This makes it easy to experiment with different effects. You can move the dialog out of the way by dragging the Title bar.

5. **When you have the results you want, click "OK" to implement the changes and return to the Chart window.**

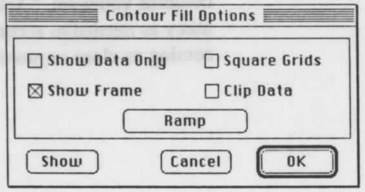
   If you want to exit the dialog without changing the chart, click "Cancel."

Contour Fill Chart Options

To set options for Contour Fill and XYZ Contour Fill charts:

1. **Select one of the charts listed above.**
2. **Choose "Options..." from the Chart menu or type ⌘–Y.**

   The following dialog appears, with defaults set as shown below. An X in the selection box indicates the option is on.



Contour Fill Options

☐ Show Data Only ☐ Square Grids
☒ Show Frame ☐ Clip Data

3. **Make your selections as needed.**

   You have the following options:

   Show Data Only Displays only the data graphics, hiding all other chart elements including the frame.

   Square Grids Changes the grid pattern, where the X and Y axes grid lines intersect, into squares.

   Show Frame Provides a back plane to the chart. This option does not have any affect on the grid. This option must be selected if you want to fill the chart with a pattern or color or use a shadow.

   Clip Data Hides or clips off any data plotted outside the chart grids.

   Ramp Displays a dialog so you can create a smooth color/grayscale blend on the chart. Refer to "Using the Ramp Option" at the end of this chapter to learn how this feature works.

4. **Click "Show" to preview your changes without exiting the dialog.**

   This makes it easy to experiment with different effects. You can move the dialog out of the way by dragging the Title bar.

5. **When you have the results you want, click "OK" to implement the changes and return to the Chart window.**

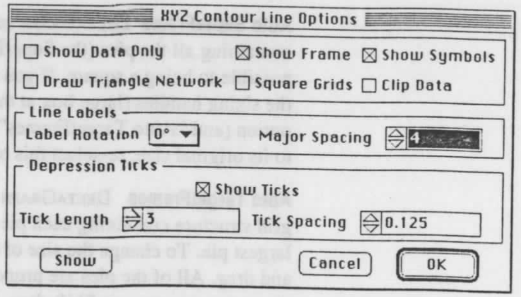
   If you want to exit the dialog without changing the chart, click "Cancel."

Contour Line Chart Options

To set options for Contour Line and XYZ Contour Line charts:

1. **Select one of the charts listed above.**
2. **Choose "Options..." from the Chart menu or type ⌘–Y.**

   A variation of the following dialog appears, with defaults set as shown below. An X in a selection box indicates the option is on.



XYZ Contour Line Options

☐ Show Data Only ☒ Show Frame ☒ Show Symbols
☐ Draw Triangle Network ☐ Square Grids ☐ Clip Data

Line Labels
Label Rotation 0° Major Spacing 4

Depression Ticks
☒ Show Ticks
Tick Length 3 Tick Spacing 0.125

3. **Make your selections and enter data as needed.**

   You have the following options:

   Show Data Only Displays only the data graphics, hiding all other chart elements including the frame.

   Show Frame Provides a back plane to the chart. This option does not have any affect on the grid. This option must be selected if you want to fill the chart with a pattern or color or use a shadow.

   Show Symbols Displays symbols on the chart.

   Draw Triangle Network (XYZ Contour Line chart only) Connects data points together in a triangular pattern on the surface of the chart.

   Square Grids Changes the grid pattern, where the X and Y axes grid lines intersect, into squares.

   Clip Data Hides or clips off any data plotted outside the chart grids.

   Line Labels Displays the elevation of the contour line.

   > **Label Rotation** Displays a pop-up menu you can choose the rotation of elevation labels. Tangent rotates the labels at the same angle as the contour lines.

Major Spacing Controls the spacing between labels on the contour line. Unit of measure is determined in "Rulers & Grids..."

Depression Ticks Indicates a depression in the elevation relief, such as a hole or volcano.

Show Ticks Displays depression tick marks.

Tick Length Controls the length of the Depression ticks in points. To change the tick length, you can enter a value or click the direction arrows to scroll through the available options.

Tick Spacing Controls the distance between Depression ticks. Unit of measure used is determined in "Rulers & Grids..." To change the tick spacing, you can enter a value or click the direction arrows to scroll through the available options.

4. **Click "Show" to preview your changes without exiting the dialog.**

   This makes it easy to experiment with different effects. You can move the dialog out of the way by dragging the Title bar.

5. **When you have the results you want, click "OK" to implement the changes and return to the Chart window.**

   If you want to exit the dialog without changing the chart, click "Cancel."

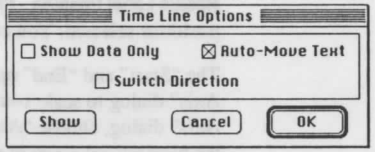
Time Line Chart Options

To set options for a Time Line chart:

1. **Select a Time Line chart.**

2. **Choose "Options..." from the Chart menu or type ⌘–Y.**

   The following dialog appears, with defaults set as shown below. An X in a selection box indicates the option is on.



Time Line Options

☐ Show Data Only ☒ Auto-Move Text

☐ Switch Direction

3. **Make your selections as needed.**

   You have the following options:

Show Data Only Displays only the data graphics, hiding all other chart elements including the frame.

Auto-Move Text DeltaGraph automatically positions chart labels for optimum legibility. If you reposition any or all of the labels manually, this option is de-selected. To revert all of the chart labels back to their original positions, re-select this option.

Switch Direction Rotates the viewing angle of the chart. The chart is displayed in the horizontal position unless "Switch Direction" is selected; this rotates the chart to the vertical position.

4. **Click "Show" to preview your changes without exiting the dialog.**

   This makes it easy to experiment with different effects. You can move the dialog out of the way by dragging the Title bar.

5. **When you have the results you want, click "OK" to implement the changes and return to the Chart window.**

   If you want to exit the dialog without changing the chart, click "Cancel."

Table Chart Options

To set options for a Table chart:

1. **Select a Table chart.**

2. **Choose "Options..." from the Chart menu or type ⌘–Y.**

   The following dialog appears, with defaults set as shown below. An X in a selection box indicates the option is on.

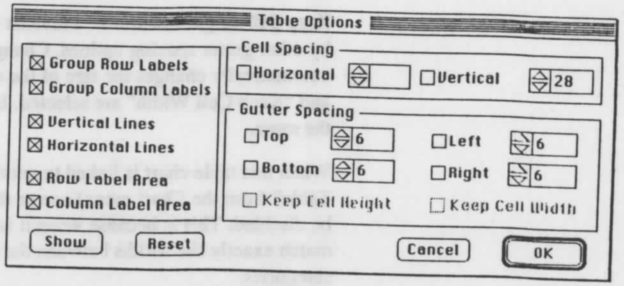


Table Options

☒ Group Row Labels

☒ Group Column Labels

☒ Vertical Lines

☒ Horizontal Lines

☒ Row Label Area

☒ Column Label Area

Cell Spacing

☐ Horizontal ☐ Vertical 28

Gutter Spacing

☐ Top 6 ☐ Left 6

☐ Bottom 6 ☐ Right 6

☐ Keep Cell Height ☐ Keep Cell Width

3. **Make your selections and enter data as needed.**

   You have the following options:

Group Row Labels Removes the horizontal lines between the row labels.

Group Column Labels Removes the vertical lines between the column labels.

Vertical Lines Turns vertical lines on or off.

Horizontal Lines Turns horizontal lines on or off.

Row Label Area Displays the row labels and the column that contains them. You can de-select this option if your table does not have row labels or if you want to remove the labels from your chart.

Column Label Area Displays the column labels and the row that contains them. You can de-select this option if your table does not have column labels or if you want to remove the labels from your chart.

Cell Spacing Increases or decreases the horizontal or vertical size of the cells within the chart, as measured in points (1/72"). To change the cell spacing, you can enter a value between 0 and 32,767 or click the direction arrows to scroll through the available options.

Gutter Spacing Increases or decreases the amount of space between the text and the table grid lines, as measured in points (1/72"). To change the gutter spacing, you can enter a value between 0 and 16,383 (half of the Cell Spacing maximum) or click the direction arrows to scroll through the available options.

Top and Bottom Sets the spacing between rows.

Left and Right Sets the spacing between columns.

Keep Cell Height and Width Prevents the cell size from being changed by other gutter spacing options. Changing the gutter spacing automatically changes the size of the cells unless "Keep Cell Height" and "Keep Cell Width" are selected. In that case the cell size remains the same.

When this table chart is linked to another chart (created using "Attach Table" from the Chart menu) one or the other of these check boxes is be disabled. This is because when it is linked, the Category widths match exactly the widths between the tick marks of the original charts categories.

Reset DeltaGraph automatically sizes each Table chart and the cells within it for optimum legibility. If you make any changes to cell or gutter spacing default values, or to the size of the chart itself, you can click this button to make *all* size options revert to their original positions.

4. **Click "Show" to preview your changes without exiting the dialog.**

   This makes it easy to experiment with different effects. You can move the dialog out of the way by dragging the Title bar.

5. **When you have the results you want, click "OK" to implement the changes and return to the Chart window.**

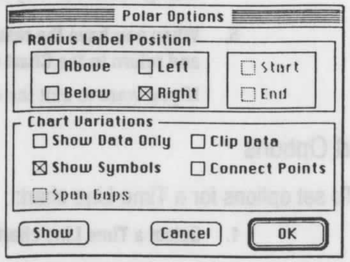
   If you want to exit the dialog without changing the chart, click "Cancel."

Polar Chart Options

To set options for a Polar chart:

1. **Select a Polar chart.**
2. **Choose "Options..." from the Chart menu or type ⌘-Y.**

   The following dialog appears, with defaults set as shown below. An X in a selection box indicates the option is on.


Polar Options

Radius Label Position
☐ Above ☐ Left ☐ Start
☐ Below ☒ Right ☐ End

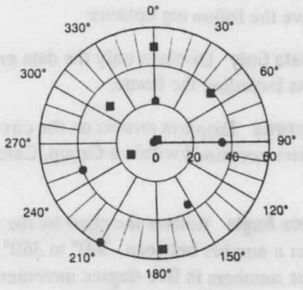
Chart Variations
☐ Show Data Only ☐ Clip Data
☒ Show Symbols ☐ Connect Points
☐ Span Gaps

3. **Make your selections as needed.**

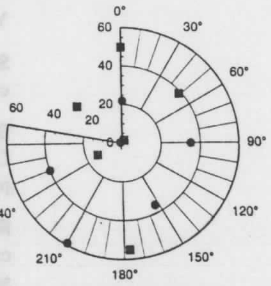
   You have the following options:

   Radius Label Position Places labels along the radius in each of the positions selected. You can select one or more options.

   The "Start" and "End" options are available only if you use the "Angle Axis" dialog to scale your chart to less than 360°. To access the "Angle Axis" dialog, choose "Axis" from the Chart menu and select "Angle" from the hierarchical menu or see "Changing the Axes of a Polar Chart" in Chapter 7 to learn more about changing the Angle axis.



360° CHART WITH A LABEL AT THE RIGHT



280° CHART WITH A LABEL AT THE START

Show Data Only Displays only the data graphics, hiding all other chart elements including the frame.

Clip Data Hides or "clips off" any data plotted outside the chart grids.

Show Symbols Displays data symbols on the chart.

Connect Points Connects all data points of the same series.

Span Gaps Draws connecting lines through any missing data points. Each line is drawn from the last data point before the missing data to the first data point after the missing data. "Connect Points" must be selected in order to activate the "Span Gaps" option.

4. **Click "Show" to preview your changes without exiting the dialog.**

   This makes it easy to experiment with different effects. You can move the dialog out of the way by dragging the Title bar.

5. **When you have the results you want, click "OK" to implement the changes and return to the Chart window.**

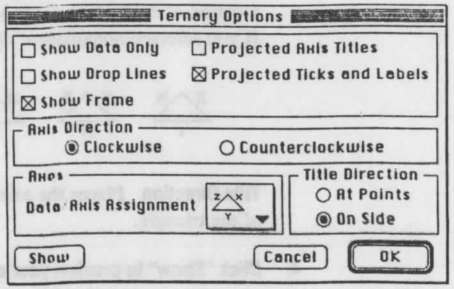
   If you want to exit the dialog without changing the chart, click "Cancel."

Ternary Chart Options

To set options for a Ternary chart:

1. **Select a Ternary chart.**
2. **Choose "Options..." from the Chart menu or type ⌘–Y.**

   The following dialog appears, with defaults set as shown below. An X in a selection box or a highlighted button indicates the option is on.



Ternary Options

☐ Show Data Only
☐ Show Drop Lines
☒ Show Frame
☐ Projected Axis Titles
☒ Projected Ticks and Labels

Axis Direction
● Clockwise
○ Counterclockwise

Axes
Data Axis Assignment

Title Direction
○ At Points
● On Side

3. **Make your selections as needed.**

   You have the following options:

   Show Data Only Displays only the data graphics, hiding all other chart elements including the frame.

   Projected Axis Titles Draws axis titles in perspective to the axis.

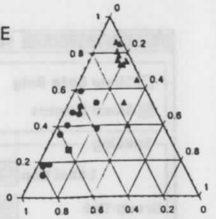
   Show Drop Lines Drops a line from each data symbol to each of the three axis planes.

   Projected Ticks and Labels Draws ticks and labels in perspective to the grid lines.

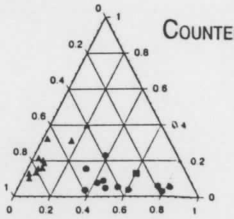
   Show Frame Provides a back plane to the chart. This option does not have any affect on the grid. This option must be selected if you want to fill the chart with a pattern or color.

   Axis Direction Rotates the chart axes as shown below.

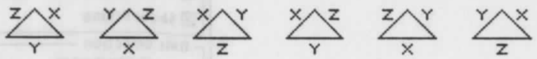
CLOCKWISE



COUNTERCLOCKWISE



Data/Axis Assignment Displays a pop-up menu so you can choose the location of each of the three Value axes. The X-axis is typically column A. If you selected nonadjacent data, however, it is the first column you select.



Title Direction Places the axis titles on the side of each axis or at the points of the triangle.

4. **Click "Show" to preview your changes without exiting the dialog.**

   This makes it easy to experiment with different effects. You can move the dialog out of the way by dragging the Title bar.

5. **When you have the results you want, click "OK" to implement the changes and return to the Chart window.**

   If you want to exit the dialog without changing the chart, click "Cancel."

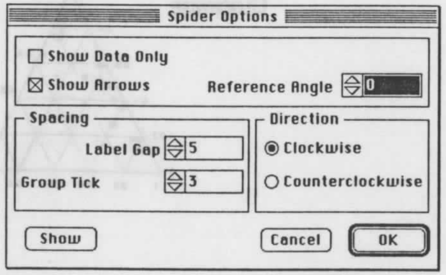
To learn more about	refer to
Creating axis titles	"Creating/Positioning Axis Labels and Titles" in Chapter 7

Spider Chart Options

To set options for a Spider chart:

1. **Select a Spider chart.**
2. **Choose "Options..." from the Chart menu or type ⌘–Y.**

   The following dialog appears, with defaults set as shown below. An X in a selection box or a highlighted button indicates the option is on.



☐ Show Data Only

☒ Show Arrows

Reference Angle 0

Spacing

Label Gap 5

Group Tick 3

Direction

● Clockwise

○ Counterclockwise

3. **Make your selections and enter data as needed.**

   You have the following options:

   Show Data Only Displays only the data graphics, hiding all other chart elements including the frame.

   Show Arrows Displays arrows on the circular arcs used to annotate the Categories contained within a Group. Categories are grouped in the Data page.

   Reference Angle Rotates the chart by the number of degrees entered. You can enter a number between -360° to 360° or click the direction arrows to scroll the numbers in five-degree increments.

   Label Gap Changes the distance or gap between the Value, Category, and Group labels proportionately to the point size entered. You can enter a number between 0 to 32768 points or click the direction arrows to scroll the numbers in one-point increments.

   Group Tick Controls the length of the tick.

   Direction Reverses the direction of the chart.

4. **Click "Show" to preview your changes without exiting the dialog.**

   This makes it easy to experiment with different effects. You can move the dialog out of the way by dragging the Title bar.

5. **When you have the results you want, click "OK" to implement the changes and return to the Chart window.**

   If you want to exit the dialog without changing the chart, click "Cancel."

To learn more about	refer to
Creating Group labels on a Spider chart	"Special 2 Charts" in Chapter 6

3-D Chart Options

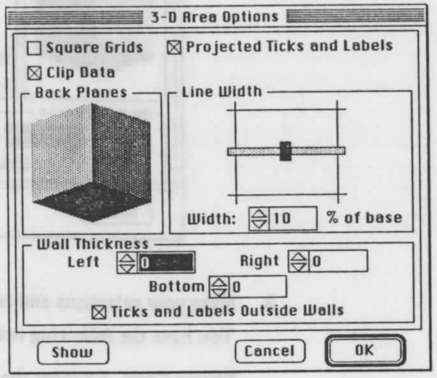
3-D Area Chart Options

To set options for a 3-D Area chart:

1. **Select a 3-D Area chart.**

2. **Choose "Options..." from the Chart menu or type ⌘–Y.**

   The following dialog appears, with defaults set as shown below. An X in a selection box indicates the option is on.



☐ Square Grids ☒ Projected Ticks and Labels

☒ Clip Data

Width: 10 % of base

Left 0 Right 0 Bottom 0

☒ Ticks and Labels Outside Walls

3. **Make your selections and enter data as needed.**

   You have the following options:

   Square Grids Changes the grid pattern on the bottom plane of the chart into squares.

   Projected Ticks and Labels Draws ticks and labels in perspective to the grid lines.

   Clip Data Hides or clips off any data plotted outside the chart grids.

   Back Planes Turns any or all three back planes on (the default) or off. (Back planes are the "walls" of the chart.) To turn on or off, click on the plane(s) you want to change.

   Line Width Controls the width of the chart's data graphics based on a percentage of the grid size. To change the line width, you can drag the sizing handles up or down, enter a value between 0% and 100%, or click the direction arrows to scroll through the options.

   Wall Thickness Controls the thickness of the back planes, as measured in points (1/72"). To change the thickness of a wall, enter a point size or click the direction arrows to scroll through the values.

   Ticks and Labels Outside Walls Extends the ticks across the wall thickness and adjusts the labels to the same perspective as the ticks (used in conjunction with "Wall Thickness").

4. **Click "Show" to preview your changes without exiting the dialog.**

   This makes it easy to experiment with different effects. You can move the dialog out of the way by dragging the Title bar.

5. **When you have the results you want, click "OK" to implement the changes and return to the Chart window.**

   If you want to exit the dialog without changing the chart, click "Cancel."

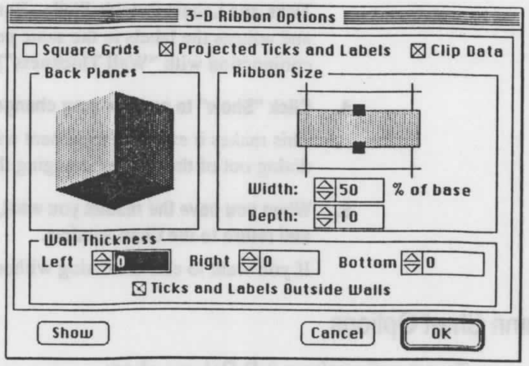
3-D Ribbon Chart Options

To set options for a 3-D Ribbon chart:

1. **Select a 3-D Ribbon chart.**

2. **Choose "Options..." from the Chart menu or type ⌘–Y.**

   The following dialog appears, with defaults set as shown below. An X in a selection box indicates the option is on.



☐ Square Grids ☒ Projected Ticks and Labels ☒ Clip Data

Width: 50 % of base

Depth: 10

Left 0 Right 0 Bottom 0

☒ Ticks and Labels Outside Walls

3. **Make your selections and enter data as needed.**

   You have the following options:

   Square Grids Changes the grid pattern on the bottom plane of the chart into squares.

Projected Ticks and Labels Draws ticks and labels in perspective to the grid lines.

Clip Data Hides or clips off any data plotted outside the chart grids.

Back Planes Turns any or all three back planes on (the default) or off. (Back planes are the "walls" of the chart.) To turn on or off, click on the plane(s) you want to change.

Ribbon Size Controls the width and depth of the chart's data graphics. The width of the ribbon is based on a percentage of the grid size, the depth is measured in points (1 point = 1/72").

To change the ribbon width, you can drag the sizing handles up or down, enter a percentage between 0% and 100%, or click the direction arrows to scroll through the options.

To change the depth, you can enter a point size or click the direction arrows to scroll through the point sizes.

Wall Thickness Controls the thickness of the back planes, as measured in points (1/72"). To change the thickness of a wall, enter a point size or click the direction arrows to scroll through the values.

Ticks and Labels Outside Walls Extends the ticks across the wall thickness and adjusts the labels to the same perspective as the ticks (used in conjunction with "Wall Thickness").

4. **Click "Show" to preview your changes without exiting the dialog.**

   This makes it easy to experiment with different effects. You can move the dialog out of the way by dragging the Title bar.

5. **When you have the results you want, click "OK" to implement the changes and return to the Chart window.**

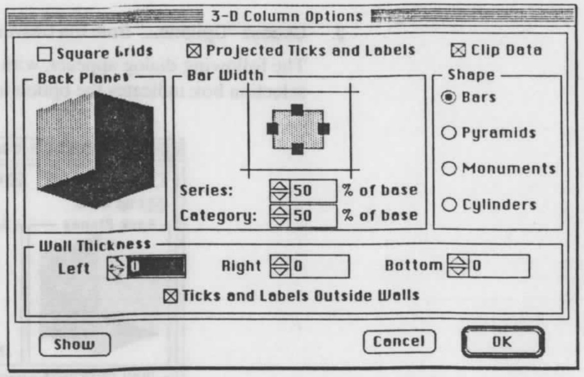
   If you want to exit the dialog without changing the chart, click "Cancel."

3-D Column Chart Options

To set options for a 3-D Column chart:

1. **Select a 3-D Column chart.**
2. **Choose "Options..." from the Chart menu or type ⌘–Y.**

   The following dialog appears, with defaults set as shown below. An X in a selection box or a highlighted button indicates the option is on.



☐ Square Grids
☒ Projected Ticks and Labels
☒ Clip Data
Series: 50 % of base
Category: 50 % of base
● Bars
○ Pyramids
○ Monuments
○ Cylinders
Left 0
Right 0
Bottom 0
☒ Ticks and Labels Outside Walls

3. **Make your selections and enter data as needed.**

   You have the following options:

Square Grids Changes the grid pattern on the bottom plane of the chart into squares.

Projected Ticks and Labels Draws ticks and labels in perspective to the grid lines.

Clip Data Hides or clips off any data plotted outside the chart grids.

Back Planes Turns any or all three back planes on (the default) or off. (Back planes are the "walls" of the chart.) To turn on or off, click on the plane(s) you want to change.

Bar Width Controls the width of the chart's data graphics, using the Category and Series axis grids as a boundary and based on a percentage of the base grid size.

To change the width of the data graphics, you can drag the sizing handles vertically (resized the graphics alone the Series axis) or horizontally (resizes the graphics along the Category axis), enter a value between 1% and 100%, or click the direction arrows to scroll through the options.

Shape Determines the shape of the data graphics. You can choose from bars, pyramids, monuments, or cylinders.

Wall Thickness Controls the thickness of the back planes, as measured in points (1/72"). To change the thickness of a wall, enter a point size or click the direction arrows to scroll through the values.

Ticks and Labels Outside Walls Extends the ticks across the wall thickness and adjusts the labels to the same perspective as the ticks (used in conjunction with "Wall Thickness").

4. **Click "Show" to preview your changes without exiting the dialog.**

   This makes it easy to experiment with different effects. You can move the dialog out of the way by dragging the Title bar.

5. **When you have the results you want, click "OK" to implement the changes and return to the Chart window.**

   If you want to exit the dialog without changing the chart, click "Cancel."

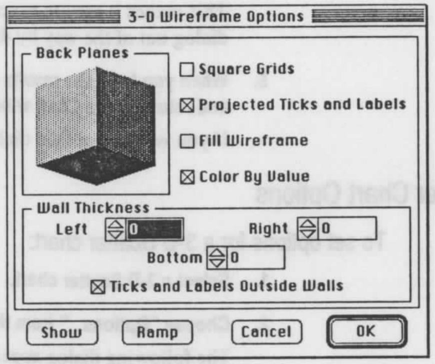
3-D Wireframe Chart Options

To set options for a 3-D Wireframe chart:

1. **Select a 3-D Wireframe chart.**

2. **Choose "Options..." from the Chart menu or type ⌘–Y.**

   The following dialog appears, with defaults set as shown below. An X in a selection box indicates the option is on.



3-D Wireframe Options

Back Planes

☐ Square Grids

☒ Projected Ticks and Labels

☐ Fill Wireframe

☒ Color By Value

Wall Thickness

Left 0

Right 0

Bottom 0

☒ Ticks and Labels Outside Walls

3. **Make your selections and enter data as needed.**

   You have the following options:

   Back Planes Turns any or all three back planes on (the default) or off. (Back planes are the "walls" of the chart.) To turn on or off, click on the plane(s) you want to change.

Square Grids Changes the grid pattern on the bottom plane of the chart into squares.

Projected Ticks and Labels Draws ticks and labels in perspective to the grid lines.

Fill Wireframe Fills in wireframe so that data graphic is opaque and you can add colors and fill patterns.

Color by Value Assigns colors to each series based on the Z axis value. "Fill Wireframe" must be checked when using this option.

Wall Thickness Controls the thickness of the back planes, as measured in points (1/72"). To change the thickness of a wall, enter a point size or click the direction arrows to scroll through the values.

Ticks and Labels Outside Walls Extends the ticks across the wall thickness and adjusts the labels to the same perspective as the ticks (used in conjunction with "Wall Thickness").

Ramp Displays a dialog so you can create a smooth color/grayscale blend on the chart. Refer to "Using the Ramp Option" at the end of this chapter to learn how this feature works.

4. **Click "Show" to preview your changes without exiting the dialog.**

   This makes it easy to experiment with different effects. You can move the dialog out of the way by dragging the Title bar.

5. **When you have the results you want, click "OK" to implement the changes and return to the Chart window.**

   If you want to exit the dialog without changing the chart, click "Cancel."

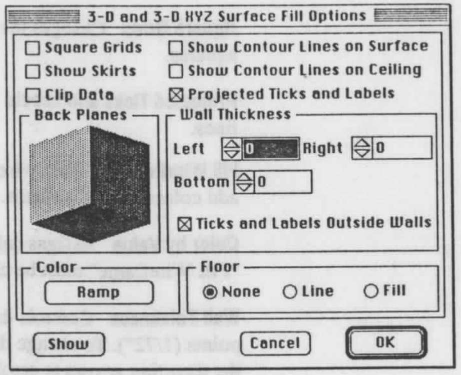
3-D Surface Fill and 3-D Surface Line Chart Options

To set options for 3-D Surface Fill, 3-D Surface Line, 3-D XYZ Surface Fill, and 3-D XYZ Surface Line charts:

1. **Select one of the charts listed above.**

2. **Choose "Options..." from the Chart menu or type ⌘–Y.**

   A variation of the following dialog appears, with defaults set as shown below. Options available are dependent on the type of chart selected. An X in a selection box or a highlighted button indicates the option is on.



3-D and 3-D XYZ Surface Fill Options

☐ Square Grids

☐ Show Skirts

☐ Clip Data

☐ Show Contour Lines on Surface

☐ Show Contour Lines on Ceiling

☒ Projected Ticks and Labels

Wall Thickness: Left 0, Right 0, Bottom 0

☒ Ticks and Labels Outside Walls

Floor: ● None ○ Line ○ Fill

3. **Make your selections and enter data as needed.**

   You have the following options:

   Square Grids Changes the grid pattern on the bottom plane of the chart into squares.

   Show Contour Lines on Surface (3-D Surface Fill and 3-D XYZ Surface Fill charts only) Displays the contour lines on the data graphic surface.

   Show Skirts Fills the area between the bottom of the plotted data and the base of the chart, creating a skirt around the data graphic.

   Show Contour Lines on Ceiling (3-D Surface Fill and 3-D XYZ Surface Fill charts only) Displays the contour lines on the chart ceiling.

   Clip Data Hides or clips off any data plotted outside the chart grids.

   Projected Ticks and Labels Draws ticks and labels in perspective to the grid lines.

   Back Planes Turns any or all three back planes on (the default) or off. (Back planes are the "walls" of the chart.) To turn on or off, click on the plane(s) you want to change.

   Wall Thickness Controls the thickness of the back planes, as measured in points (1/72"). To change the thickness of a wall, enter a point size or click the direction arrows to scroll through the values.

   Ticks and Labels Outside Walls Extends the ticks across the wall thickness and adjusts the labels to the same perspective as the ticks (used in conjunction with "Wall Thickness").

   Ramp Displays a dialog so you can create a smooth color/grayscale blend on the chart. Refer to "Using the Ramp Option" at the end of this chapter to learn how this feature works.

   Floor Projects a 2-D representation of the chart onto the chart floor, creating a line or fill shadow of the data graphic.

Wall Thickness Controls the thickness of the back planes, as measured in points (1/72"). To change the thickness of a wall, enter a point size or click the direction arrows to scroll through the values.

Ticks and Labels Outside Walls Extends the ticks across the wall thickness and adjusts the labels to the same perspective as the ticks (used in conjunction with "Wall Thickness").

4. **Click "Show" to preview your changes without exiting the dialog.**

   This makes it easy to experiment with different effects. You can move the dialog out of the way by dragging the Title bar.

5. **When you have the results you want, click "OK" to implement the changes and return to the Chart window.**

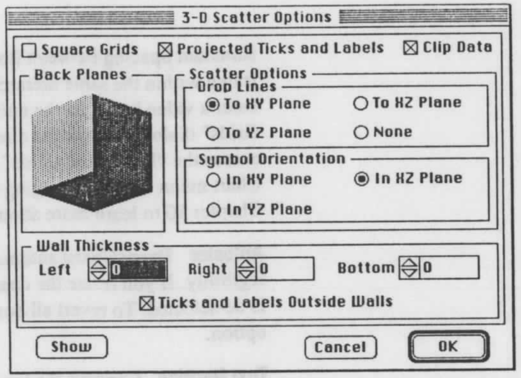
   If you want to exit the dialog without changing the chart, click "Cancel."

3-D Scatter Chart Options

To set options for a 3-D Scatter chart:

1. **Select a 3-D Scatter chart.**
2. **Choose "Options..." from the Chart menu or type ⌘–Y.**

   The following dialog appears, with defaults set as shown below. An X in a selection box indicates the option is on.



3. **Make your selections and enter data as needed.**

   You have the following options:

   Square Grids Changes the grid pattern on the bottom plane of the chart into squares.

   Projected Ticks and Labels Draws ticks and labels in perspective to the grid lines.

   Clip Data Hides or clips off any data plotted outside the chart grids.

   Back Planes Turns any or all three back planes on (the default) or off. (Back planes are the "walls" of the chart.) To turn on or off, click on the plane(s) you want to change.

   Drop Lines Drops a line from each data symbol to the selected plane. You can choose from XY Plane, XZ Plane, YZ Plane, or None.

   Symbol Orientation Draws the data symbols in the selected plane, which changes the symbols' orientation. You can choose the XY, XZ, or YZ plane.

   Wall Thickness Controls the thickness of the back planes, as measured in points (1/72"). To change the thickness of a wall, enter a point size or click the direction arrows to scroll through the values.

   Ticks and Labels Outside Walls Extends the ticks across the wall thickness and adjusts the labels to the same perspective as the ticks (used in conjunction with "Wall Thickness").

4. **Click "Show" to preview your changes without exiting the dialog.**

   This makes it easy to experiment with different effects. You can move the dialog out of the way by dragging the Title bar.

5. **When you have the results you want, click "OK" to implement the changes and return to the Chart window.**

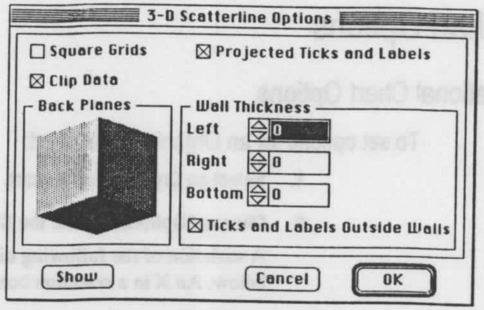
   If you want to exit the dialog without changing the chart, click "Cancel."

3-D Scatterline Chart Options

To set options for a 3-D Scatterline chart:

1. **Select a Scatterline chart.**
2. **Choose "Options..." from the Chart menu or type ⌘–Y.**

   The following dialog appears, with defaults set as shown below. An X in a selection box indicates the option is on.



3. **Make your selections and enter data as needed.**

   You have the following options:

   Square Grids Changes the grid pattern on the bottom plane of the chart into squares.

   Projected Ticks and Labels Draws ticks and labels in perspective to the grid lines.

   Clip Data Hides or clips off any data plotted outside the chart grids.

   Back Planes Turns any or all three back planes on (the default) or off. (Back planes are the "walls" of the chart.) To turn on or off, click on the plane(s) you want to change.

Wall Thickness Controls the thickness of the back planes, as measured in points (1/72"). To change the thickness of a wall, enter a point size or click the direction arrows to scroll through the values.

Ticks and Labels Outside Walls Extends the ticks across the wall thickness and adjusts the labels to the same perspective as the ticks (used in conjunction with "Wall Thickness").

4. **Click "Show" to preview your changes without exiting the dialog.**

   This makes it easy to experiment with different effects. You can move the dialog out of the way by dragging the Title bar.

5. **When you have the results you want, click "OK" to implement the changes and return to the Chart window.**

   If you want to exit the dialog without changing the chart, click "Cancel."

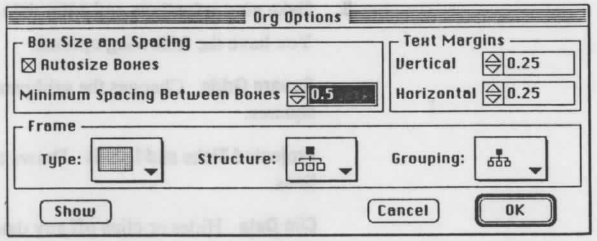
Text Chart Options

Organizational Chart Options

To set options for an Organizational chart:

1. **Select an Organizational chart.**
2. **Choose "Options..." from the Chart menu or type ⌘-Y.**

   A variation of the following dialog appears, with defaults set as shown below. An X in a selection box indicates the option is on.



☒ Autosize Boxes

Minimum Spacing Between Boxes 0.5

Vertical 0.25

Horizontal 0.25

3. **Make your selections and enter data as needed.**

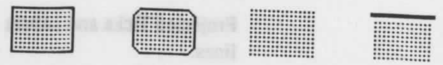
   You have the following options:

Minimum Spacing Between Boxes Controls the spacing between each data frame within the same hierarchical level. To change the spacing, you can enter a value based on the unit of measure selected in the "Rulers and Grids" dialog, or click the direction arrows to scroll through the options. To access the "Rulers and Grids" dialog, choose "Rulers and Grids..." from the Chart menu or see "Changing Rulers and Grids in the Chart Window" in Chapter 10 to learn more about changing the ruler units.

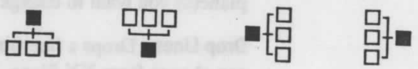
Autosize DELTAGRAPH automatically sizes chart cells for optimum legibility. If you resize the chart or individual boxes in the chart, this option is de-selected. To revert all boxes back to their original size, re-select this option.

Text Margins Controls the top and bottom margins (Vertical) or the left and right margins (Horizontal) within the data frame. To change the Text Margins, enter a measurement or click the direction arrows to scroll through the values. Unit of measure is determined in "Rulers & Grids..."

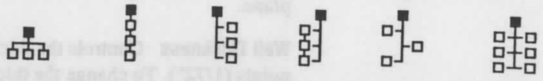
Frame Type Determines the shape of the cell frames. Press on the "Type" pop-up menu to select one of the following frame types.



Frame Structure Determines the flow direction (top to bottom, bottom to top, left to right, or right to left) of the Organizational chart. Press on the "Structure" pop-up menu to select one of the following flow structures.



Frame Grouping Determines how the levels are grouped. Press on the "Grouping" pop-up menu to select one of the following grouping structures.



4. **Click "Show" to preview your changes without exiting the dialog.**

   This makes it easy to experiment with different effects until you get just the look you want. You can move the dialog out of the way by dragging the Title bar.

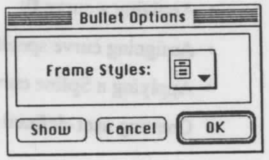
5. **Click "OK" to make the change, or click "Cancel" to exit the dialog without changing the chart.**

Bullet Chart Options

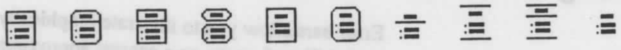
To set options for a Bullet chart:

1. **Select a Bullet chart.**
2. **Choose "Options..." from the Chart menu or type ⌘–Y.**

   A variation of the following dialog appears, with defaults set as shown below. An X in a selection box indicates the option is on.



3. **Select one of the following frame styles from the pop-up menu.**



4. **Click "Show" to preview your changes without exiting the dialog.**

   This makes it easy to experiment with different effects. You can move the dialog out of the way by dragging the Title bar.

5. **When you have the results you want, click "OK" to implement the changes and return to the Chart window.**

   If you want to exit the dialog without changing the chart, click "Cancel."

Using the Ramp Option

The Ramp option, available in the "Options..." dialogs for Contour, Contour Fill, XYZ Contour Fill, Wireframe, 3-D Surface Fill, 3-D XYZ Surface Fill charts, displays a dialog so you can create a smooth color or pattern blend in a chart's data graphics and legend.

To set the color and pattern ramp:

1. **Select one of the charts listed above.**

2. **Choose "Options..." from the chart menu or type ⌘–Y.**

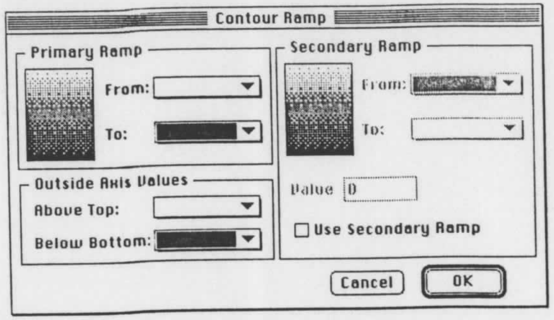
   The appropriate options dialog appears.

3. **Click on "Ramp."**

   The following dialog appears:

4. **Make your selections as needed.**

   You have the following options:



Value: 0

Primary Ramp Each of the selections displays a color palette which you can use to select a start and end color or grayscale for your data graphic and legend. Changes are made from the top of the data graphic to the bottom. Changes to the ramp appear in the example box to the left.

Secondary Ramp Works the same as the Primary Ramp.

Click in the "Use Secondary Ramp" selection box to activate the Secondary Ramp. You can enter a start value where you want the secondary ramp to begin. You can also enter a starting value for the secondary ramp.

Outside Axis Values Each of the selections displays a color palette which you can use to select a color or grayscale tint for data graphics that extend above or below the value axis.

5. **When you have the results you want, click "OK" to implement the changes and return to the Options dialog.**

   If you want to exit the dialog without changing the ramp, click "Cancel."

9 Adding Error Bars and Curve Fits to a Chart

This chapter gives you basic information on how to apply and define Error Bars and Curve Fits. It also explains how to define your own curve fit function.

This chapter covers:

- **Adding error bars to a chart**
- **Understanding the types of curves**
- **Applying a curve fit**
- **Assigning curve specifications to the curve fit**
- **Applying a Spline curve**
- **Creating user-defined curve fits**

Adding Error Bars to a Chart

Error bars allow you to illustrate graphically actual errors, the statistical probability of errors, or a general approximation or “spread” in your data. Examples might include experimental errors in measurement or atypical data points in comparison to the rest of the data.

You can add error bars to the following 2-D charts: Bar, Column, Line, Step, Scatter, Paired Scatter, X-Y Line, and Paired X-Y Line. You can choose error bar options for *all* series, or for an *individual* series with different parameters for the upper and lower error bars.

Error bars appear as two short dashes for the upper and lower values of the spread, with a line connecting the two dashes at their centers. These three parts of the error bar are treated as one chart element in the chart, so you can, for example, make an all-red error bar, but you cannot make red dashes with a blue connecting line.

Note: If you need more graphic formatting control, and the underlying data is best represented as a line chart, use the “Formula Builder...” command in the Data menu, or do the calculations outside of DELTAGRAPH and make a Range chart with high and low components instead of a Line chart with error bars.

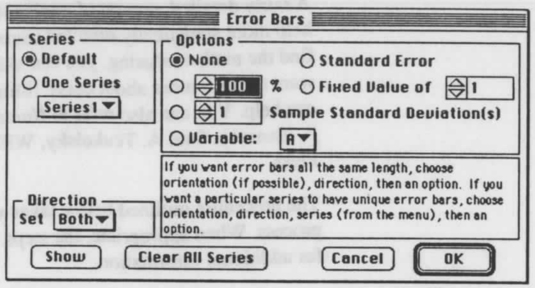
To add error bars to a chart:

1. **Select the chart to which you want to add error bars.**

   Error bars can be added to Column, Bar, Line, Step, Scatter, Paired Scatter, X-Y Line, and Paired X-Y Line charts.

2. **Choose "Error Bars..." from the Chart menu.**

   A variation of the "Error Bars" dialog appears, with defaults set as shown below. A highlighted selection button indicates the option is on.



If you want error bars all the same length, choose orientation (if possible), direction, then an option. If you want a particular series to have unique error bars, choose orientation, direction, series (from the menu), then an option.

3. **Make your selections and enter data as needed.**

   The ends of each error bar are determined by making selections or typing values into the "Error Bar" dialog. You have the following options:

   Series Sets error bars for all or one data series. "Default" affects all data series. To set error bars for an individual data series, select the series name from the pop-up menu below "One Series"; this automatically selects the "One Series" option.

   Once you have specified different parameters for a particular series, changes you make while you're in the default mode will not affect it. Changes made in the Options and Direction sections affect only the series that are selected. Help for the "Series" section appears below the "Options" selections.

   Options Lists the types of error bars you can add to your chart.

   None No error bars are drawn.

   Standard Error The placement of each end of the error bar corresponds to the standard error of the data point. The standard error is computed as follows:

Standard Error = sqrt (sumSquare + ((count – 1)(count)))

where: sqrt = square root function

sumSquare = sum of the squares of all the data values in all the series plotted

count = number of valid data values plotted

% Each end of the error bar is placed at the percentage entered in the dialog, times the value of the data point. That percentage number is based on the scale of the axis; you can type in any value greater than or equal to zero or use the direction arrow to scroll the options.

Fixed Value Each end of the error bar is placed a distance from the data value equal to the number entered in the dialog. That number is based on the scale of the axis; you can type in any value greater than or equal to zero or use the direction arrow to scroll the options.

Sample Standard Deviation(s) Each end of the error bar is placed at a distance N*SD in user scale units from the computed value, M. N can be any number greater than or equal to zero; you can type in the appropriate value or use the direction arrows to scroll the options. SD is the sample standard deviation computed as follows:

SD = sqrt (sumSquare + (count – 1))

where: sqrt, sumSquare and count are defined as above and

M = sum of all valid data values for all series selected, divided by count (that is, the arithmetic mean).

This computation places the mean of all the series at the center of each error bar, rather than placing the data values at the center of each error bar. So, the position of the ends of each error bar measured along the Value axis is the same for each category (such as a Line chart or Step chart) or each data value (such as a Scatter chart). That is, all the error bars "line up," instead of being "staggered" with the data.

Variable Each end of the error bar is placed at a certain distance from the data value. That distance can be different for each category (such as a Line chart or Step chart) or for each data value (such as a Scatter chart). It must be placed in a column of the data sheet where the data to be plotted resides. Choose the name of the column from the pop-up menu to the right of the word "Variable."

Orientation When using error bars with a Scatter chart, each X component and Y component can independently have error bars of any variety, including "None." Switch back and forth between components by clicking on the buttons under "Orientation." When analyzing the data to determine where the error bars are placed, the above explanations are valid as long as "data value" is replaced with "X component of the data value" or "Y component of the data value," as appropriate.

Direction Sets the orientation of the error bars (both, plus, or minus).

You can have different error bar parameters for the Plus or Minus bar. For example you might use the standard error for the Plus, but use a percentage for the Minus. You can also use the direction settings in combination with individual series settings.

Clear One Series/Clear All Series Changes the settings of the selected series back to the default setting. Select the series, then click on the Clear button at the bottom of the dialog.

4. **Click "Show" to preview your changes without exiting the dialog.**

   This makes it easy to experiment with different effects. You can move the dialog out of the way by dragging the Title bar.

5. **When you have the results you want, click "OK" to implement the changes and return to the Chart window.**

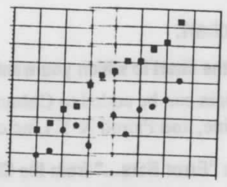
   If you want to exit the dialog without changing the chart, click "Cancel."

Using Curve Fits

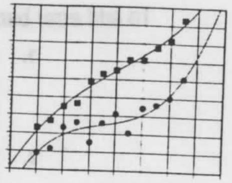
You can use the "Curve Fitting..." command to draw a curve that is "fitted" to the plotted data points. There are two classes of curve fits: "Spline" and "other." A Spline curve passes through all the data points. The other curves might not pass through any of the data points, passing instead between or near plotted data points.

Curves or curve fits can be applied to Line, Step, Scatter, Paired Scatter, X-Y Line, and Paired X-Y Line charts. You can draw curves for only one series, a selection of data series, or all the series.

DELTAGRAPH displays curves within the boundaries of the axes only. If you wish to see more of the curve you can extend the data ranges of your Value axes.



WITHOUT A CURVE FIT



WITH A CURVE FIT

By their nature, the formulas used to derive curves in DELTAGRAPH are complex. A fairly detailed amount of explanations for the equations has been included to help more statistically oriented users understand the methods being used. If you find the math confusing, you can skip over the more technical passages. If you want to learn more about curve fitting, most college-level statistics textbooks can help. You can also refer to *Numerical Recipes in C*; William H. Press, Brian P. Flannery, Saul A. Teukolsky, William T. Vetterling; Cambridge University Press.

The procedure outlined below takes you step by step through the curve fitting process. When appropriate, the steps refer you to other sections of the chapter for additional information.

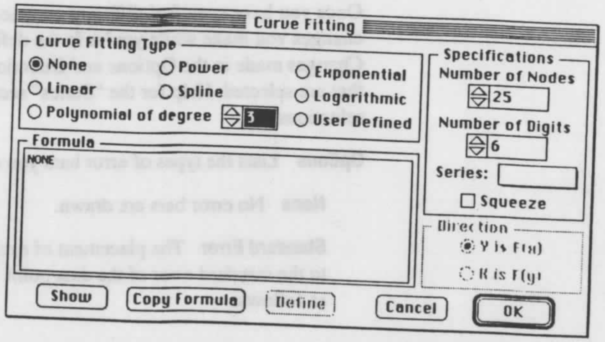
To fit a curve:

1. **Select the chart.**

   Remember Curve Fits can only be performed on Line, Step, Scatter, Paired Scatter, X-Y Line, and Paired X-Y Line charts.

2. **Choose "Curve Fitting..." from the Chart menu.**

   A variation of the "Curve Fitting" dialog appears, with defaults set as shown below. A highlighted button indicates that an option is selected.



Curve Fitting

Curve Fitting Type
● None ○ Power ○ Exponential
○ Linear ○ Spline ○ Logarithmic
○ Polynomial of degree 3 ○ User Defined

Formula
NONE

Specifications
Number of Nodes 25
Number of Digits 6
Series:
☐ Squeeze

Direction
● Y is F(x)
○ X is F(y)

3. **Select the series you wish to fit a curve to by pressing on the "Series" pop-up menu in the "Specifications" section of the dialog.**
4. **Choose the type of curve you want from the "Curve Fitting Type" section.**

   This option determines the type of curve you want to apply to your data series. When you choose a linear, polynomial, power, exponential, or logarithmic curve type, the R^2 or correlation coefficient value along with the formula is displayed in the large "Formula" window. This value can be copied and pasted into a text block in your Chart window. The formula for a user-defined curve fit is displayed only after it is defined. Refer to the references below for additional information on the types of curve fits.
5. **Make changes to the "Specifications" and "Direction" sections as necessary.**

   Refer to "Assigning Curve Fit Specification and Direction" later in this chapter for information on using these sections
6. **Click "Show" to preview your changes without exiting the dialog.**

   This makes it easy to experiment with different effects. You can move the dialog out of the way by dragging the Title bar.
7. **If you want to fit curves to more data series, select a different series and repeat steps 4–6.**
8. **When you have the results you want, click "OK" to implement the changes and return to the Chart window.**

   If you want to exit the dialog without changing the chart, click "Cancel."

To learn more about	refer to
The different types of curve fits	"Understanding the Types of Curve Fits" later in this chapter
User-defined curve fitting	"Creating a User-Defined Curve Fit" later in this chapter
Spline curves	"Creating Spline Curves" later in this chapter

Understanding the Types of Curve Fits

Each of the "other" curve-fitting techniques ("Linear," "Polynomial," "Power," "Exponential," "Logarithmic," and "User Defined") uses the "linear least-squares method" to determine the "best fit" for the curve. These curve fitting techniques are also displayed in the "Curve Fitting" dialog.

Choosing a Curve Fit

Linear For the function $f_x = ax + b$, a and b are calculated so that the sum of the squares of the errors given by $\sum(f(x_i - y_i)^2$ is minimized.

- $f(x) = ax + b$;

Polynomial For the function $f_x = a_0 + a_1 * x + a_2 * x^2 + ... + a_n * x^n$, a multiple linear regression is performed using $1, x_i, (x_i)^2, ..., (x_i)^n$ as the values of the independent variables and y_i as the values of the dependent variable. The results are used for $a_0, a_1, ..., a_n$.

You can enter a degree of the polynomial from 1 to 10; default is 3. The degree of the polynomial is dependent on the number of data points plotted:

2 points = First-degree polynomial (2 points is a Line)

3 points = Second-degree polynomial

4 points = Third-degree polynomial

etc.

It is not necessary to enter the exact polynomial degree for the plotted data. For example, if you have four points on your chart you can enter a degree of "5." DELTAGRAPH automatically finds the appropriate degree to use. All of the "extra" terms in the polynomial higher than the "perfect fit" degree get coefficients of zero.

Power For the function $g(x) = a*x=B$, A and b are calculated so that the sum of the square of the errors given by $\sum[g(\mathrm{In}(x_i)) - \ln(y_i)]^2$ is minimized. Then b is calculated as $b = e^B$, and the formula is displayed as $f(x) = a*(x**b)$.

Spline The formula is not displayed, because it is not convenient to display such a detailed formula in the "Curve Fitting" dialog. Refer to "Creating Spline Curves" later on in this chapter for more information.

Exponential For the function $g(x) = A + b*x$, A and b are calculated so that the sum of the square of the errors given by $\sum[g(x_i) - \ln(y_i)]^2$ is minimized. Then a is calculated as $a = \ln(A)$, and the formula is displayed as $f(x) = a*\exp(b*x)$.

Logarithmic For the function $f(x) = a*\ln(x) + b$, a and b are calculated so that the sum of the square of the errors given by $\sum[f(x_i) - y_i]^2$ is minimized.

User-Defined Allows you to create a curve-fit model function of your own. Click on "Define" to define the parameters and establish your equation. For more information on creating a user-defined curve fit, refer to "Creating a User-Defined Curve Fit" later in this chapter.

Understanding How Curve Fitting Affects Different Charts

In all the curve-fitting techniques, one or more model functions are chosen to represent the best fit to the data. Every function must get its data from somewhere — the *domain* of the function. The curve representing these functions will go from one end of the domain to the other.

Curve fitting on 2-D Scatter charts is different from curve fitting on a Line or Step chart.

For Line and Step charts, the domain of the function is always the category numbers and all numbers in between them.

For Scatter charts, the domain can be either the X axis or the X axis. Here X and Y refer to the data components. The X component of data for the first series always comes from the first column of values selected; the Y component comes from the second column.

The X axis of a Scatter chart is horizontal unless "Switch Axes" is selected in the chart's "Options..." dialog. To choose a component of the data to indicate the domain of the function, select "Y is F(x)" or "X is F(y)" from the "Direction" section of the "Curve Fitting" dialog. "Y is F(x)" chooses the values on the x axis as the domain; "X is F(y)" chooses y values for the domain.

When a Scatter chart with a Spline curve is selected, the "Direction" buttons are dimmed. Two functions are calculated: one that returns x values and one that returns y values. The domain for each function is the category numbers.

In the options discussed below, the values x_i and y_i are determined by the chart type and the "Direction" selection.

For a Line chart and a Step chart, the x_i are the category numbers, starting at 1 for the first category. The y_i are the values in each of those categories. (The "Direction" selection does not matter.)

For a Scatter chart, there are two cases:

- If "Y is F(x)" is selected, x_i are the x components and y_i are the y components.
- If "X is F(y)" is selected, x_i are the y components and y_i are the x components.

Assigning Curve Fit Specifications and Direction

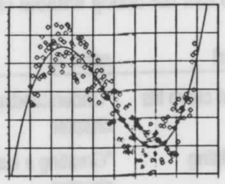
Defining the Number of Nodes

DELTAGRAPH draws all curve fits as Bezier curves. A Bezier curve is defined by a list of nodes and control points. Nodes are points through which the curve must pass. Control points are points that affect the path of the curve between nodes.

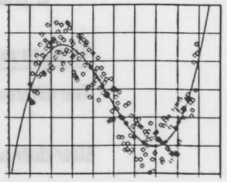
"Number of Nodes," in the "Specifications" section of the "Curve Fitting" dialog, determines the number of Bezier nodes that the curve must pass through. For a Spline curve, this number must be the number of valid data points plotted, so the dialog item is dimmed. For any other curve, you can enter any number greater than 1 and less than 251; default is 25.

In general, more nodes means a more accurate representation of the curve. However, more than two nodes on a straight line is unnecessary, while a large number of nodes can use excessive memory.

Because DELTAGRAPH can curve fit data whose Value axis or axes are scaled by logarithm, the number of nodes for a linear fitted curve is not forced to two. If one Value axis is scaled by logarithm, a linear fitted curve is not a straight line. However, if one Value axis is scaled by logarithm, an exponential fitted curve is a straight line.



WITH TWO NODES
THE CURVES ARE CHOPPY



WITH FOUR NODES
THE CURVES ARE MORE FLOWING

Defining the Number of Digits

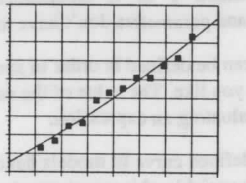
"Number of Digits," in the "Specifications" section of the "Curve Fitting" dialog, determines the number of digits that appear to the right of the decimal in the mantissa of each of the parameters that appear in the curve fit formula displayed in the "Formula" window. Enter a "0" to display *all* digits beyond the decimal. You can enter any number from 1 to 16; default is 6.

Selecting a Series

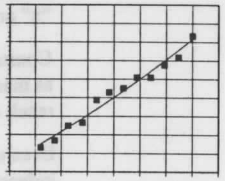
You can use a different type of curve fit on each series of data in the chart. To choose the different series, click on the pop-up menu next to "Series" in the "Specifications" section of the "Curve Fitting" dialog.

Using the Squeeze Function

When "Squeeze" is off (default) in the "Specifications" section of the "Curve Fitting" dialog, the curve fit is drawn over the entire axis of the domain of the curve fit function. When "Squeeze" is selected, the curve is drawn over an interval bounded by the smallest and largest domain values.



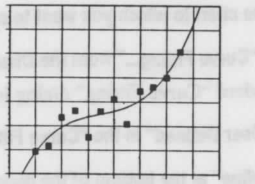
SQUEEZE OFF, THE LINE EXTENDS FROM AXIS TO AXIS



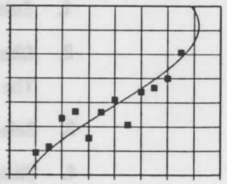
SQUEEZE ON, THE LINE DOES NOT EXTENT OUT TO THE AXES

Choosing the Axis Direction

The "Direction" section of the "Curve Fitting" dialog gives you tow options: "Y is F(x)" chooses Y as the dependent variable; "X is F(y)" chooses X as the dependent variable. The examples below use a second-degree polynomial curve fit.



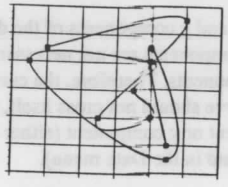
Y IS F(X)



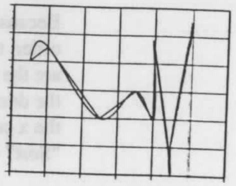
X IS F(Y)

Creating a Spline Curve

The Spline curve is drawn through all points on the chart. The effects of a Spline curve on a chart are determined by the type of chart plotted. Below are two different types of charts plotted with the same data. On the Scatter chart, the Spline curve connects each data point in the order it was selected from the Data page. An X-Y Line chart, on the other hand, connects the points from one end of the domain to the other no matter how the data was selected in the Data page.



SCATTER CHART



X-Y LINE CHART

Applying Spline Curves to Line and Step Charts

Over each interval between categories, the curve follows the function $f_x = a*x^3 + b*x^2 + c*x + d$; which is a third-degree polynomial. Each interval can have a completely different set a, b, c, and d.

The domain of f (the values that x can take) are the category numbers at the data points plotted and all real numbers in between. The range of f (the values computed by f) are in the user scale for the Value axis.

The curve is smooth through the transitions from one third-degree polynomial to the next in the sense that the value of the function, its first and second derivatives at the right end of one interval, are equal to the corresponding values at the left end of the next interval to the right.

Because category numbers are always increasing from 1 to the total number of categories and also go from one end of the Category axis to the other, the curve does not cross over itself.

Applying a Spline Curve to Scatter Charts

Here the Spline curve is defined by two functions. The x function is defined on the category number of the data values and all real numbers in between and takes on values in the user scale of the X axis, while the y function is defined on the category numbers and takes on values of the Y axis.

On each interval defined by adjacent category numbers, the curve follows the two functions:

- $x_t = ax^*t^3 + bx^*t^2 + cx^*t + dx$
- $y_t = ay^*t^3 + by^*t^2 + cy^*t + dy$

As with the Line chart and Step chart, the ax, bx, cx, and dx, as well as the ay, by, cy, and dy, may be different for each interval. They are calculated so that the function values, and their first and second derivatives, match up on interval boundaries.

Because the x and y components of the data values can be listed in any arbitrary order, the x components are not necessarily increasing with category, and neither are the y components. Therefore, the curve may cross over itself many times. If the desired curve should not cross itself, then the data should be sorted either by the x component or y component (either outside of DELTAGRAPH or with the "Sort" command in the Data menu).

Understanding User-Defined Curve Fits

This feature allows you to define your own curve-fit function and provides more flexibility to model specifications.

User-defined curve fitting is a general way of picking a function to represent or describe your data. Without user-defined curve fitting, you are restricted to a very narrow range of functions. For instance, the "linear" curve fit allows you to pick functions of the form: f(x) = a*x+b.

DELTAGRAPH picks the best values of a and b, so that when plotted the function lies "as close as possible" to the data points supplied by the user, according to the "linear least-squares" method. But with linear scaling on both axes of a Scatter chart, this curve is not "curvy" — it is a straight line, no matter what values are selected by DELTAGRAPH for a and b. The other curve fit options may give a more "curvy" curve than "linear," but each curve fit type has its own limited set of curve possibilities.

User-defined curve fits allow quite a bit more freedom in that you can define what the possibilities are. A "Linear" curve fit uses only "+" and "*" and the two parameters "a" and "b." User-defined curve fits, can use any of the operators, any of the functions (with a few restrictions on the arguments for some functions), and any number of parameters. Knowing what formula to type to get a particular family of shapes requires knowing analytical geometry. But you can use DELTAGRAPH as an experimental tool to see how different kinds of functions fit different kinds of data.

It is more likely, though, that you have a specific model in mind, based on some knowledge of science, mathematics, engineering, economics, or statistics. Such models have a great deal of variety, yet many of them are expressible in the function language of user-defined curve fits. In order to make the translation from a given model in, say, a science text to the function syntax of user-defined curve fits, several features have been implemented.

User-Defined Curve Fitting Restrictions

Anything with a name can be named most any way you like. (Well, almost any way you like; sorry, no Greek letters allowed.) Dependent variables don't all have to be called "y" or "f," independent variables don't all have to be called "x" or "t," and parameters don't have to have names like "m1" or "m2."

Constants can be defined in order to simplify the formulas, and you can define as many as you like. The value of the constant can be a simple number or the result of evaluating an expression.

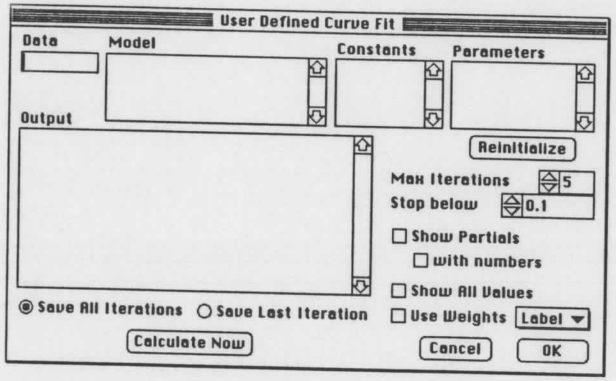
Even user-defined curve fit models have limits though. You may have only one independent variable; this represents the x component of data in a two-component data series (such as in a Scatter chart) or the category number in a one-component data series (such as in a Line chart). You can also have only one dependent variable; this represents the y component of data in a two-component series (such as in a Scatter chart) or the only component of data in a one-component data series (such as in a Line chart). Your models will not be able to use some commonly used functions that we do not supply: complex functions, many statistical functions, linear transformations, tensor transformations, integration, and differentiation, for example.

To display the "User-Defined Curve Fit" dialog:

1. **Select the chart to which you want to apply a user-defined curve fit.**
2. **Choose "Curve Fitting…" from the Chart menu.**

   The standard "Curve Fitting" dialog is displayed.
3. **Select "User Defined" in the "Curve Fitting Type" section of the dialog.**
4. **Click "Define" at the bottom of the dialog.**

   The following dialog appears, with defaults set as shown below. An X in a selection box or a highlighted button indicates the option is on.



Max Iterations 5

Stop below 0.1

● Save All Iterations

Data This is the name given to the independent variable. You can call it "x," "t," "dollars," or anything you like. However you spell it, this same spelling must be used whenever you refer to the independent variable in your model. This is just a name, not a formula or equation.

Constants Each constant is a name and a formula. The constant name can be used in any other formula. It is a shorthand for the result of evaluating the constant formula. Any number of constants can be defined (within limits of memory).

Each constant definition consists of a constant name and an equal sign followed by a constant expression. If you have more than one definition, they must each be separated by a list separator (; in the U.S. version). These are called "constants" because a constant's formula may not depend on the independent variable or any of the parameters. Other than that restriction, a constant can have any formula.

The "Parameters" window can contain references to these constants in the formulas that set the initial values of the parameters. The model formula can also refer to any of these constants. These are entirely optional.

Parameters These are the quantities that give your model its flexibility. In your model formula, you place a parameter in the formula wherever you have an unknown quantity and you want DELTAGRAPH to figure out what the best value of that quantity should be.

Even though DELTAGRAPH will calculate a "best" value, you must supply an "initial" value. The technique used for determining best parameter values is an "iterative" algorithm (the Levenberg-Marquardt method; see *Numerical Recipes in C*) and as such requires a reasonable guess as to what the right answer is before it can "improve" on it to get the best answer.

Any name you use for a parameter, along with an initial value for that parameter, must be included in the "Parameters" window in the following form:

Note the list separators (i.e., semicolons in the U.S. version) separating each parameter definition. Parameter names follow the usual rules for names. Initial values can be numbers, or formulas referring to constants.

Please remember that any formulas used are for initial values only. DELTAGRAPH improves upon those values when you apply the curve fit. The final values of the parameters are displayed in the "Output" window of the "User-Defined Curve Fit" dialog and in the "Formula" window of the "Curve Fitting" dialog. If "Save All Iterations" is selected (default), then the best value so far of each parameter at each step of the iteration is displayed in the "Output" window when the curve fit is complete.

Since the iteration starts with your initial values for each of the parameters and improves on them with each step, the final values of the parameters may be very different for a different set of initial values.

Model This is the equation that defines the possibilities in your curve fit model. It is always of the form

<dependent variable name> = <model formula>

<dependent variable name> follows the usual naming rules. The name is just for "show" — you never have to type it in any other box. It will be displayed in the "Curve Fitting" dialog's "Formula" window and may also appear in the partial derivative expressions in the "User-Defined Curve Fit" dialog's "Output" window when "Show Partials" is selected.

<model formula> is the mathematical formula that details how the dependent variable of your model depends on the independent variable and the parameters. You can use any of the operators and functions that are valid in the "Formula Builder" dialog. You must use at least one parameter in your formula. You must use the independent variable in your formula. You can use any constant you have defined in the "Constants" window.

User-Defined Curve Fitting Rules

Every entry you make in the "Data," "Model," "Constants," and "Parameters" fields within this dialog starts out with a name followed by an equal sign(=). Each of these names is used to name the independent variable, the dependent variable or model, constants, or parameters that you are defining for your curve-fitting function. Refer to Figures 9-1 and 9-2 for a user-defined curve fit example. The names that you assign to these fields have the following restrictions;

- Names must be limited to 63 characters.
- An equal sign (=) must follow the name. (The "Data" field does not require an equal sign.)
- The name must be unique and cannot be used to name any other function within another field in the dialog.
- The name can consist of a combination of letters and numbers or a single quote (') but cannot start with a number.
- The name cannot contain an underscore (_) or spaces.

After the name and equal sign (=), the "Model," "Constants," and "Parameters" fields contain a definition for the name.

- Constants can be defined with expressions containing references to previously defined constants.
- Parameters can be initialized with expressions containing references to previously defined parameters *or* constants.
- Letters of the alphabet can be used in the expression to represent columns of data within the Data page. If you want to use letters in the expression to refer to something other than columns of data, you must define them in the "Constants" or "Parameters" window. Letters that refer to columns, or what the computer may think refer to columns, are automatically capitalized. Columns in the Data page are lettered from A thru Z, then AA thru IT.
- You can have multiple parameters or constants defined, however, be sure to separate definition by a list separator (a semicolon is used in the U.S.).

Using Formulas in a User-Defined Curve Fit

You can use function arguments from the "Formula Builder" dialog in the user-defined curve fit. Formulas are appropriate in three places:

- The constant expression in a constant definition.
- The initial value in a parameter definition.
- The model formula in the model definition.

Other formula restrictions are as follows:

Model You can use the following functions without restriction in the "Model" window:

sin, asin, sinh, asinh, cos, acos, cosh, acosh, tan, atan, tanh, atanh, cot, acot, coth, acoth, csc, acsc, csch, acsch, sec, asec, sech, asech, Sqrt, Exp, Log, Ln. You can also use the formula for the nth root as described within "Understanding DeltaGraph Functions Available" in Chapter 4.

Any of the other functions can be used with the following restriction: neither the independent variable ("Data") nor any parameter may appear in any of the function arguments. (This is to insure that the other function must have zero-valued partial derivatives with respect to the independent variable and each parameter.) If you break the rule, an error message alerts you when you press "Calculate Now."

Constants and Parameters All of the functions can be used with no restrictions when defining values for constants and initial values for parameters.

To learn more about	refer to
The "Formula Builder..." command	"Using the 'Formula Builder...' Command" in Chapter 4

Creating a User-Defined Curve Fit

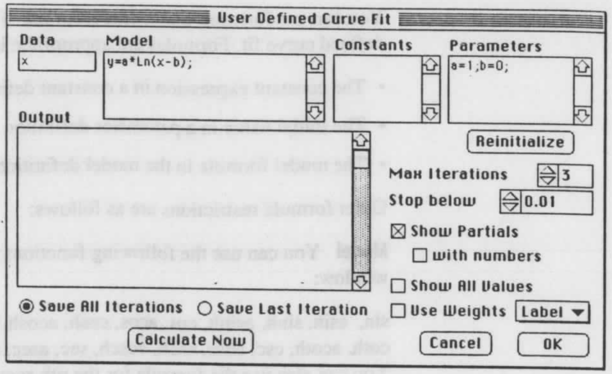
To create a user-defined curve fit:

1. **Display the "User Defined" dialog as described.**

   See "To display the 'User-Defined Curve Fit' dialog" in "User-Defined Curve Fitting Restrictions" earlier in this chapter.

2. **Enter the name you want to use to reference the independent variable in the entry box next to "Data."**

   Refer to Figure 9-1 for an example of a user-defined curve fit.



Data: x

Model: y=a*Ln(x-b);

Parameters: a=1;b=0;

Max Iterations: 3

Stop below: 0.01

☒ Show Partials

☐ with numbers

☐ Show All Values

☐ Use Weights: Label

● Save All Iterations ○ Save Last Iteration

FIGURE 9-1. A USER-DEFINED CURVE FIT EXAMPLE

3. **In the window under "Constants," enter the name of a constant, an equal sign (=), then an expression to initialize the constant.**

   This is an optional entry. The "Constants" window does not require any entry if you do not want to use named constants.

   You can have multiple constants, but you must separate them by a semi-colon. The constants are used in the model expression (in the "Models" window) or in the parameters initializations (in the "Parameters" window).

   You cannot use the independent variable, the dependent variable, the "Data" name, or a parameter name in the expression. Constants can be referenced and used in the "Parameters" window, or you can enter references to Columns within the Data page.

4. **In the window under "Parameters," enter the name of the parameter, an equal sign (=), then an expression to initialize the parameter.**

   You must have at least one parameter. If you have multiple parameters, separate them by a semi-colon. Because your model must include at least one parameter, you must have at least one parameter name and initial value included in the "Parameters" window (otherwise DELTAGRAPH has nothing to calculate).

   User-defined curve fitting uses an iterative algorithm. The initial value of each parameter is supplied here. Each iteration may improve the values of the parameters.

In the curve-fitting algorithm, the constant expressions are evaluated and stored in the order you list them. Then the initial values of the parameters are evaluated and stored in the order you list them. Note the order in which you list the constants and parameters and take care not to refer to an undefined constant or uninitialized parameter.

You cannot use the independent variable or the dependent variable to define any of the initial values of the parameters.

5. **In the window under "Model," enter the name you want to use as the dependent variable, an equal sign (=), then the model expression.**

   You must have a model equation. The expression defines how the dependent variable in the model depends on the independent variable and the parameters. It should contain at least one reference to the independent variable (the name entered in the "Data" section) and at least one reference to a parameter.

6. **Make changes to other options in the dialog as necessary.**

   Reinitialize Changes the starting value for the next iteration, based on the last value of the previous curve fit. If a curve fit has been calculated, pressing this button causes the best values of the parameters to be substituted for the initial values of the parameters. This change is reflected in the Parameters block. This is useful if the previous curve fit calculation has stopped because the maximum number of iterations was attained, but it is desirable to continue the curve fit algorithms for more iterations. Press "Reinitialize", followed by "Calculate Now" to continue the curve fitting algorithm. If a curve fit has not been calculated, then this button will be disabled.

   Max Iterations Determines the maximum number of calculations used in finding the best possible values for the parameters. Enter numbers from 1 to 32,767; default is 5. Remember, the more iterations, the longer the computation takes. All iterations are displayed in the "Output" window and numbered 1:, 2:, etc. (see Fig. 9-2). If you enter "0," no iterations are calculated; the initial values of the parameters are used as the final values of the parameters

   Stop Below The algorithm stops if chi-squared is less than the entered value at the end of an iteration.

   Show Partials Shows partial derivatives of the model function with respect to the independent variable and parameters. This option does not affect the curve fit in any way; it is there for your own information.

with numbers Controls how the parameters inside a partial derivative are displayed in the "Output" window – show partials must be selected. If deselected, then the names of the parameters are displayed in the partial derivative formulas. If selected, then the best values of the parameters are displayed in place of names in the partial derivative formulas.

Show all Values Determines how many iterations will be displayed in the "Output" window, good or bad, including chi-squared. When off, the Output box shows the best values of the parameters at any step shown. When on, the Output box shows the new parameters values used at each step shown, in addition to the best values.

Use Weights Determines the value contributed to the total error of chi-squared using values from a column of data from the Data page. Default is 1.0. To explicitly define the weights, enter the weights in one column of the Data page. Select that column from the "Use Weights" pop-up menu. The number on the first row of the column is the weight for the first selected row in the data selection. Subsequent rows of the weight column correspond to subsequent rows of the data selection.

Specifying a weight much smaller than 1.0 for a particular data point magnifies the contribution of that data point to the total error and can make the total error much larger.

Specifying a weight much larger than 1.0 for a particular data point diminishes the contribution of the data value to the total error. It does not reduce the total error much unless all the data values are assigned weights greater than 1.0.

Save All Iterations Puts the values of the parameters and the measure of fit after each step through the iteration in the "Output" window. Each iteration in the "Output" window is numbered 1:, 2:, etc. (see Fig. 9-2).

Save Last Iteration Puts the values of the parameters and the measure of fit after the last iteration only in the "Output" window.

7. **Click on "Calculate Now."**

The iterations of the function appear in the "Output" window of the dialog (see Fig. 9-2).

The first line of the iteration contains the iteration number; this number has no significance other than to divide the iterations.

Next comes the replacement values for the parameters for that iteration. These values change with every iteration and are used by the model function to obtain a best fit for the curve.

A value for the square of the regression coefficient R^2, and chi-squared appear at the bottom of each iteration. Chi-squared is defined as follows:

$$\chi^2=\Sigma\{[y_i\text{-}f(x_i)]/(\sigma_i)\}^2$$

where: y_i is the y component of the data,

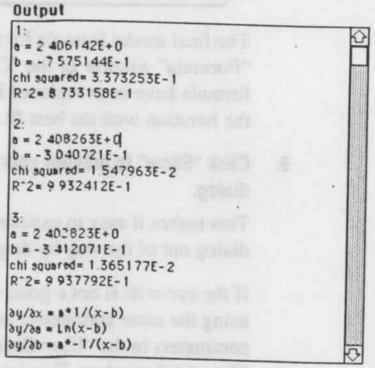
x_i is the x component of the data,

$f(x_i)$ is the value of the right-hand side of the model equation, evaluated by substituting x_i for the independent variable,

σ_i is the weight associated with each data point,

the sum, Σ, is taken over all the categories in a data selection.

If "Show Partials" was selected, the partial derivatives of the model appear at the end of the output statement. These derivatives are the partial derivatives (a concept from calculus) of the model function with respect to the independent variable and with respect to the parameters. You may find them useful, and the curve-fit algorithm needs to know them for the sake of precision. If you have n parameters, you will get n+1 partial derivatives.



```
Output
1:
a = 2.406142E+0
b = -7.575144E-1
chi squared= 3.373253E-1
R^2= 8.733158E-1

2:
a = 2.408263E+0
b = -3.040721E-1
chi squared= 1.547963E-2
R^2= 9.932412E-1

3:
a = 2.402823E+0
b = -3.412071E-1
chi squared= 1.365177E-2
R^2= 9.937792E-1

∂y/∂x = a*1/(x-b)
∂y/∂a = Ln(x-b)
∂y/∂b = a*-1/(x-b)
```

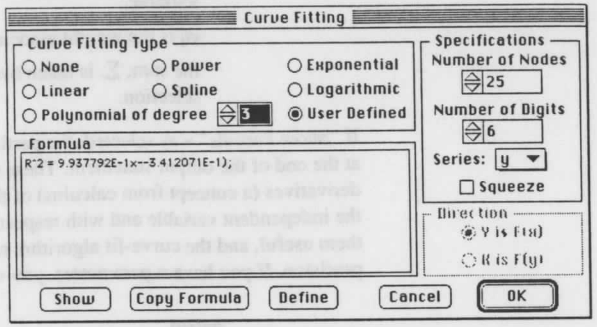
FIGURE 9-2. USER-DEFINED CURVE FIT OUTPUT

The Greek symbol "∂" is used in the standard way to specify the derivative of one variable (always the dependent variable) with respect to another variable (the independent variable or a parameter). To the right of the symbol for a derivative is an equal sign (=) followed by the formula for the specified derivative. That formula may have references to the independent variable and/or to the parameters, as dictated by the model formula you specify and the rules of calculus and algebraic simplification. Each partial derivative then looks like this in the "Output" window:

∂ <one variable> / ∂ <another variable> = <formula>

8. **Click "OK" to make the changes and return to the "Curve Fitting" dialog.**

   If you want to return to the "Curve Fitting" dialog without specifying a user-defined curve fit, click "Cancel.".



● User Defined

Polynomial of degree: 3

Formula: R^2 = 9.937792E-1x--3.412071E-1);

Number of Nodes: 25

Number of Digits: 6

Series: y

☐ Squeeze

● Y is F(x)

The final model formula for the user-defined curve fit now appears in the "Formula" window of the "Curve Fitting" dialog. The parameters in the formula have been replaced by numbers; these numbers are derived from the iteration with the best fit.

9. **Click "Show" to preview your changes without exiting the "Curve Fitting" dialog.**

   This makes it easy to experiment with different effects. You can move the dialog out of the way by dragging the Title bar.

   If the curve fit is not a good fit, it may require more iterations. Instead of using the same parameters and just requesting more iterations, replace the parameters in the "User-Defined Curve Fit" dialog with the values in the "Formula" window. This lets you start from where you left off without recalculating any previous iterations.

10. **To fit curves to more data series, select a different series by clicking on the "Series" pop-up menu and repeat steps 2–9.**

11. **Click "OK" to implement the changes and return to the Chart window.**

    If you want to exit the dialog without changing the chart, click "Cancel."

10

Creating, Editing, and Manipulating Objects in a Chart Window

This chapter explains how to use the tools in the Chart window's Toolbox to generate text (Text objects) and graphics (Draw Objects) that you can use to enhance your charts or to create slides. You will learn how to edit these objects and the text in Text objects; how to use the commands in the Draw menu to manipulate any of the four types of objects you can have in a Chart window; and how to use the Line, Color, and Pattern palettes in the Toolbox to embellish Chart, Draw, and Text objects.

This chapter covers:

- **Identifying objects in a Chart window**
- **Selecting, moving, and resizing objects**
- **Copying and deleting objects**
- **Creating and editing Draw and Text objects**
- **Editing and formatting the text within Text objects**
- **Adding color, patterns, and special fills to objects**
- **Manipulating objects with commands from the Draw menu**

Identifying Objects in a Chart Window

There can be four types of objects in a Chart window, all of which must be selected with the Pointer tool before being deleted, copied, moved, modified, or manipulated with menu commands. A selected object — whether a Chart, Draw, or Text object created in the Chart window, or a graphic imported from another application — displays four object handles that define its boundaries (see Fig. 10-1).

Chart object **A DELTAGRAPH chart. A Chart object contains many chart elements, including the labels and titles.**

Draw object **Created with one or more of DELTAGRAPH's drawing tools, it can be a simple line or a detailed drawing.**

Text object Created with the Text tool. In addition to having all the attributes of a Draw object, a Text object contains text that is manipulated with commands from the Edit and Text menus.

Imported Graphic object Any PICT or EPSF graphic imported from another Macintosh application.

To learn more about	refer to
Creating charts	Chapter 6, "Plotting Data"
Draw objects	"Creating and Editing Draw Objects" in this chapter
Text objects	"Creating and Editing Text Objects" in this chapter
Imported Graphic objects	Chapter 11, "Importing and Exporting Graphics"

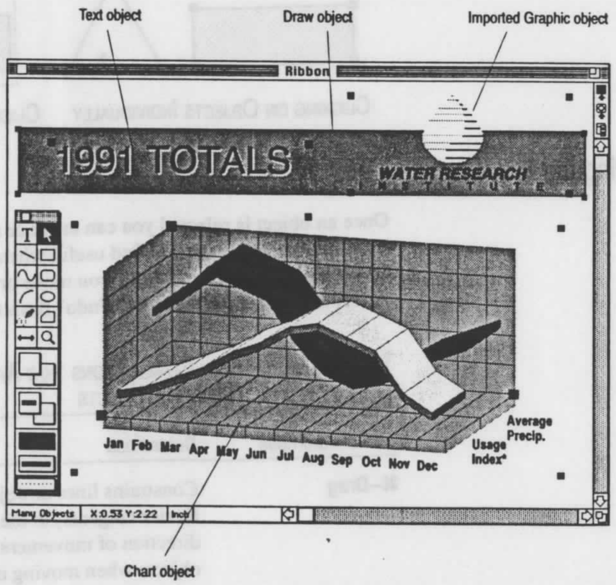


FIGURE 10-1. OBJECTS IN A CHART WINDOW

Looking at the Toolbox

The Toolbox appears automatically whenever you open a Chart window. You use the tools from the Toolbox in much the same way you use traditional art tools: you have to pick them up before you start to draw. You "pick up," or select, a tool from DELTAGRAPH's Toolbox by clicking on it before drawing in the document window.

You can move the Toolbox around the screen by clicking anywhere in the Title bar, holding down the mouse button, and dragging to a new location. You can hide the Toolbox by clicking the Close box in its upper left-hand corner or by selecting "Hide Toolbox" from the Windows menu. To open a closed Toolbox, select "Show Toolbox" from the Windows menu.

Tools fall into one of four categories according to their function: *Function tools* — the Pointer tool and magnifying glass; the *Text tool*; *Draw tools* — the Line, Rectangle, Bezier Curve, Rounded Rectangle, Arc, Oval, Freehand, Polygon, and Arrow tools; and *Palette tools* — Fill-Color palettes, Line-Color palettes, Fill-Pattern palettes, and the Line-Width palette.

TABLE 10-1. THE TOOLBOX TOOLS AND PALETTES

TOOL	FUNCTION
T	The **Text tool** creates Text objects and must be selected to enter, edit, or format text within the object.
↖	The **Pointer** selects, moves, and resizes objects.
╲	The **Line tool** creates lines.
□	The **Rectangle tool** creates rectangles and squares.
∿	The **Bezier Curve tool** creates Bezier curves.
▢	The **Rounded Rectangle tool** creates rectangles and squares with rounded corners.
◜	The **Arc tool** creates arcs.
○	The **Oval tool** creates ovals and circles.
✎	The **Freehand tool** creates freeform shapes.
⬠	The **Polygon tool** creates polygons.

Table 10-1. The Toolbox Tools and Palettes continued

Tool	Function
↔	The **Arrow tool** creates lines with arrows on one or both ends.
🔍	The **Magnifying Glass** enlarges or reduces the viewing size of the Chart window.
◩	The **Fill-Color palettes** change the foreground (upper left icon) and background (lower right icon) color of object fills.
◩	The **Line-Color palettes** change the foreground (upper left icon) and background (lower right icon) color of object lines.
▭ ▬	The **Fill-Pattern palettes** change the fill patterns of objects (upper icon) and lines (lower icon).
▭	The **Line-Width palette** changes an object's line width.

Manipulating Objects with the Pointer Tool

Because it is selected in the Toolbox when you first open DeltaGraph, the Pointer is considered the default tool; also, you will notice that most other tool selections revert to the Pointer as soon as you release the mouse button. (The Bezier Curve and Polygon tools, both of which create multi-segmented objects, and the Magnifying Glass are the only exceptions; they remain active until you select another tool.) If you double-click on a tool, it will be locked on even after you release the mouse button.

The Pointer is used to select, move and resize objects within the Chart window. In addition, when an object is selected you can copy, duplicate, and delete it, as well as apply commands from the Draw menu.

To learn more about	refer to
Selecting and manipulating elements within a chart object	Chapter 7, "Customizing Your DeltaGraph Charts"

Selecting Objects

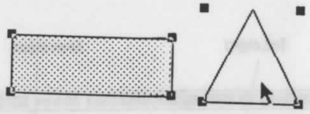
There are two simple techniques for selecting one or more objects within a Chart window:

1. Use the Pointer tool to click on the object(s) one at a time, holding down the Shift key when selecting more than one object.

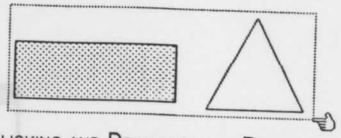
2. Using the Pointer tool to click and drag a selection rectangle around the object(s) you want selected.

Object handles appear around each object to indicate that it is selected.

3. To select individual elements of a chart object, press the Command key (⌘) and click on the element(s).



Clicking on Objects Individually



Clicking and Dragging the Pointer Tool

Moving and Resizing Objects

Once an object is selected you can move or resize it. Table 10-2 contains several key combinations you may find useful when creating, moving, and resizing objects in the Chart window. If you move or resize an object in error, you can cancel the action by choosing "Undo" from the Edit menu or typing ⌘-Z.

Table 10-2. Key Combinations that Affect Creating, Moving, and Resizing Objects

Key Combinations	Description
⌘-Drag	Constrains lines or objects (lines, arrows, polygons, Bezier tangents) to the initial vertical or horizontal direction of movement when drawing; constrains all objects when moving or resizing.
Shift-Drag	Constrains the boundaries of an object to a square when drawing or resizing.
Option-Drag	Temporarily disables the "Snap to Grid" option when drawing, resizing, or moving objects.

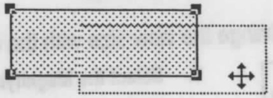
To move an object:

1. **Select the Pointer and position it over the object you want to move.**

   If you are moving a Draw object with no fill, you must click on a boundary line.

2. **Click and hold down the mouse button while you drag the object to its new location.**

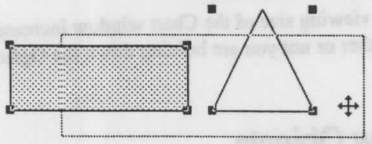
   As you drag, the Pointer turns into a crosshair with arrows and you see only the outline of the object (which reappears when you release the mouse button).



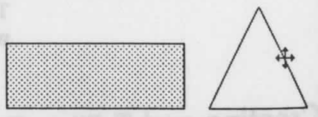
To move more than one object at a time:

1. **Select the objects you want to move.**
2. **Click on any one of the selected objects and hold down the mouse button while you drag the objects to a new location.**

   The objects move as a group, maintaining the same spatial relationships. Use the Control key if you want to see the objects as you move them.



Clicking and Dragging Objects



Using Control while Dragging

Note: See "Grouping and Ungrouping Objects" later this chapter for another way to move objects as a group.

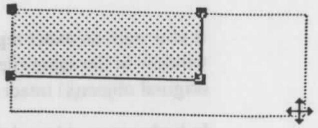
To change the size or shape of an object:

1. **Select the object you want to resize.**

   The object handles appear.

2. **Click and drag a handle until the object is the size or shape you want.**

   When you drag a handle, the Pointer changes to a crosshair with arrows.



Note: This does not change the size of the text within a Text object; it changes the size of the object only.

Copying Objects

The "Copy" command makes a copy of any selected object(s), leaving the original(s) intact. It is most useful when you want to copy something to another Chart window in the same DeltaGraph file, another file, the Scrapbook, or another Macintosh program. The copy is saved to the Clipboard where it replaces the previous contents. (See "Duplicating Objects" to learn the most efficient way to copy objects for use within the same Chart window.)

You can copy a Chart object to the Clipboard to be pasted into the Scrapbook or another application as a PICT object. If you paste the Chart object back into a Chart window, a PICT version appears. You cannot paste anything into a Chart window if any object within the window is selected.

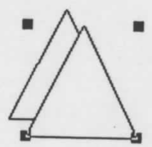
To copy one or more objects:

1. **Select the object(s) you want to copy.**
2. **Choose "Copy" from the Edit menu or type ⌘–C.**
3. **De-select the object by clicking outside it.**

   The "Paste" command is dimmed until you de-select the original. A copy of the object is now in the Clipboard, ready to paste anywhere you like. (See "Pasting Objects" later in this chapter if you need help pasting.)

Duplicating Objects

If you want an exact replica of one or more selected objects for placement within the *same* Chart window, choose "Duplicate" from the Edit menu or type ⌘–D. The duplicate object appears slightly offset from the original, with its object handles visible to show that it's selected and ready for placement on the page.



If you want an exact replica of one or more objects to use in a *different* Chart window in the same file, drag the object(s) into the new window. This leaves the original object(s) intact and still selected.

In both cases, although the duplicate uses the same data as the original, it is fully functional and remains independent; that is, it can be modified in any way available to the original object without affecting the original.

Deleting Objects

To delete one or more objects:

1. **Select the object(s) you want to delete.**
2. **Choose "Cut" or "Clear" from the Edit menu, or press the Delete key.**

   "Cut," which can also be invoked by typing ⌘–X. ⌘–X places a copy of the object in the Clipboard; "Clear" and the Delete key do not.

Pasting Objects

You can use "Paste" from the Edit menu to place the most recently cut or copied Draw, Text, or Imported Graphic objects into the same or a different Chart window, DELTAGRAPH document, or Macintosh application. If you are pasting objects into a Chart window, you must first de-select any selected objects.

To paste one or more objects:

1. **Use the "Copy" or "Cut" command on the object(s) you want to paste.**

   This places a copy of the object(s) in the Clipboard. You can paste the copy anywhere you like, as many times as you like.
2. **If necessary, activate a different DELTAGRAPH Chart window or open another DELTAGRAPH file or Macintosh application.**

   Make sure there are not objects selected.
3. **Choose "Paste" from the Edit menu or type ⌘–V.**

   The pasted object(s) appears in the upper left-hand corner of the active window.

Changing the Chart Window View Size

You can change the view size of the active Chart window in three ways: (1) by choosing a size from the hierarchical menu that appears when you choose "View Size" from the Windows menu; (2) by typing the keyboard equivalents for these menu options; or (3) by using the Magnifying Glass in the Toolbox.

Maximum enlargement is to 400% of actual size; maximum reduction is to 25% of actual size.

To change the view size with the Magnifying Glass:

1. **Select the Magnifying Glass from the Toolbox.**

   The cursor changes to a magnifying glass with a "+" (plus sign) in the middle. If you want to *in*crease the viewing size, skip to step 3; if you want to *de*crease viewing size, read step 2 first.
2. **To decrease the viewing size of the active Chart window, hold down the Option key while doing step 3.**

   The "+" (plus sign) in the middle of the glass changes to a "-" (minus sign), which signifies that it will decrease the viewing size when it is applied.
3. **Click on the Chart window.**

   The viewing size of the Chart window increases or decreases, depending on whether or not you are holding down the Option key, with each click.

Creating and Editing Draw Objects

The more time you spend experimenting with these tools — especially the Polygon, Bezier Curve, and Freehand tools — and techniques, the better you'll understand and be able to take advantage of their capabilities.

You may find it helpful to refer back to Table 10-2 before reading this section. The key combinations described in the table can be especially useful when creating, resizing, or moving Draw objects.

Once you have created a Draw object, you can use commands in the Draw menu to manipulate it and to add some interesting special effects (dashed lines, special fills, and drop shadows). You can also use the palettes in the Toolbox to change the object's line widths and to add color or patterns to the object's line or fill.

To learn more about	refer to
Changing the width, color, or pattern of a line	"Changing the Attributes of a Draw, Text, or Chart Object" in this chapter
Changing the line width	"Creating Dashed Lines" in this chapter

Creating and Editing a Line

To create a line:

1. **Select the Line tool from the Toolbox.**

   The Pointer changes to a crosshair cursor.

2. **Click and hold down the mouse button to begin your line.**

3. **Drag the mouse in the direction you want your line to follow.**

   When you release the mouse, the line appears with object handles on each end to show it is selected.

   While a line is selected, you can increase or decrease its length or change its direction by dragging a handle. When you drag a handle or move the line, the Pointer changes to a crosshair with arrows.

Creating and Editing a Rectangle, Rounded Rectangle, Square, Circle, or Oval

Use the Rectangle tool to make a square or rectangle. Use the Oval tool to make an oval or circle. Use the Rounded Rectangle tool to make a rounded rectangle.

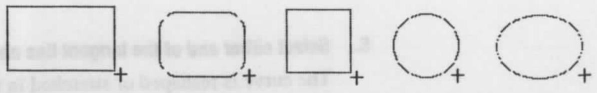
To create a rectangle, rounded rectangle, square, circle, or oval:

1. **Select the Rectangle, Rounded Rectangle, or Oval tool from the Toolbox.**

   The Pointer changes to a crosshair cursor.

2. **Click and hold down the mouse button to begin the object.**

3. **Drag the mouse diagonally in any direction until the dotted outline of the object is the size and shape you want.**



Holding down the Shift key while dragging constrains your object to a perfect square, square with rounded corners, or a circle, depending on which tool you are using.

4. **Release the mouse.**

   The object appears with object handles around it to show it is selected.

You can move, resize, and modify a rectangle, rounded rectangle, square, circle, or oval as explained in other sections. You can also use "Edit Round Corners" in the Draw menu to modify the curvature of the corners in a rounded rectangle.

To change the corners of a rounded rectangle:

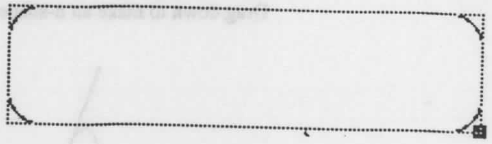
1. **Select your rounded rectangle (its object handles should be visible).**

2. **Choose "Edit Round Corners" from the Draw menu.**

   All but the bottom right selection handle disappears.

3. **Click the bottom right selection handle and drag down and away from the rectangle to make the corners more round.**

   Drag up and into the rectangle to make the corners more square.



4. **Release the mouse button when the dotted outline is the shape you want.**

5. **Click outside the rectangle to de-select it and end the edit.**

Creating and Editing a Bezier Curve

You can use the Bezier Curve tool to create very complex Draw objects. Like the Polygon and Freehand tools, the Bezier Curve tool creates irregularly shaped, multi-sided objects; however, you can change the segments between each point into curved lines. Also like a polygon and freehand object, a Bezier curve can be closed (the first and last segments are joined) or open (first and last segments are not joined).

A Bezier curve can be transparent and consist of the line only, or it can be filled with a color or pattern like other Draw objects.

Holding down the Command key while creating or resizing a Bezier curve constrains each tangent to a straight line in the original direction of movement from the drawing point.

Because the smoothness of a Bezier curve depends on the exact placement of its points, a Bezier curve does not "Snap to Grid."

To create a simple or compound curve:

1. **Select the Bezier Curve tool from the Toolbox.**

   The Pointer changes to a crosshair cursor.

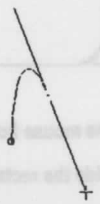
2. **Click the mouse once where you want your curve to begin.**

   A small circle marks the starting point.

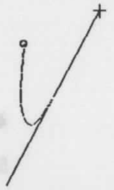
3. **Move the mouse until the crosshair on the screen is where you want the first segment of your curve to end, then click again and hold down the mouse button.**

   If you release the mouse, a straight line appears between the first and second points.

   If you hold down the mouse button and drag, a tangent line appears (as shown below) that allows you to drag the curve into the shape you want. Drag down to make an n-shaped curve; drag up to make a u-shaped curve.



N-SHAPED CURVE



U-SHAPED CURVE

4. **Release the mouse button.**

   The tangent line disappears, and object handles appear around the curve to show it is selected.

5. **Continue creating more points and setting the angle and shape of the curves with the tangent lines until your curve is complete.**

   DELTAGRAPH automatically connects the curve segments.

6. **Click on the Pointer or any other tool in the Toolbox to de-select the Bezier Curve tool when your shape is complete.**

You can move, resize, or modify a Bezier curve as explained in other sections. You can also use "Edit Bezier Curve" from the Draw menu to change the position of each segment point and the shape of each curve segment. If a segment in a Bezier curve is straight, there is no tangent line and you can change only the position of the segment point.

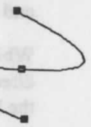
You can delete a segment point by holding down the option key while clicking on the segment point.

To edit a Bezier curve:

1. **Select your Bezier curve (its object handles should be visible).**

2. **Choose "Edit Bezier Curve" from the Draw menu.**

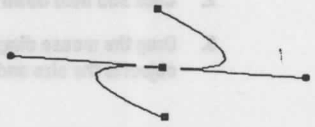
   Square object handles appear at each segment point.



3. **Select the handle of the segment point you want to change and drag it to a new position.**

4. **Release the mouse when you have repositioned the segment point where you want it.**

   A tangent line with round handles at each end appears tangent to the curve. These object handles can be dragged to control the size and shape of the curves.



5. **Select either end of the tangent line and drag to edit the shape of the curve.**

   The curve is reshaped or stretched in the direction you move the tangent line handle. Select and drag the opposite handle of the tangent if you want the curve to be reshaped in the other direction.

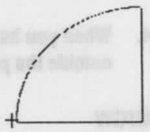
6. **Repeat steps 3 through 5 as needed.**
7. **Click outside the curve's boundaries to de-select it and end the edit.**

Creating and Editing an Arc

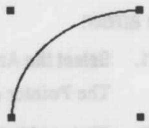
The Arc tool creates an arched line from one point to another. The curvature and angle of the arc are controlled by the position, direction, and distance of the second point in relation to the first. An arc can be transparent and consist of the line only, or it can be filled with a color or pattern like other Draw objects.

To create an arc:

1. **Select the Arc tool from the Toolbox.**
   The Pointer changes to a crosshair cursor.
2. **Click and hold down the mouse button to begin your arc, then drag the mouse diagonally in any direction until the dotted outline is the shape you want.**



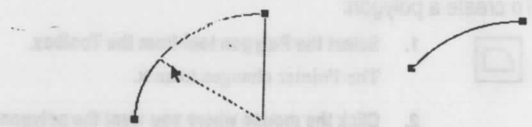
When you release the mouse, the arc appears with object handles around its boundaries to show it is selected.



You can move, resize, and modify an arc as explained in other sections. You can also use "Edit Arc" from the Draw menu to move the two endpoints.

To edit the angle of an arc:

1. **Select your arc (its object handles should be visible).**
2. **Choose "Edit Arc" from the Draw menu.**
   Object handles appear at each end of the arc.



3. **Drag the handles to change the angle of the arc.**
   A dotted line appears to show you the angle the arc is creating.
4. **When you have repositioned the endpoints to your liking, click outside the arc's boundaries to de-select it and end the edit.**

Creating and Editing a Freehand Object

The Freehand tool creates a freeform line consisting of numerous Bezier curves. Like the polygon, and Bezier curve, a freehand object can be closed (the first and last segments are joined) or open (first and last segments are not joined). A freehand object can be transparent and consist of the line only, or it can be filled with a color or pattern like other Draw objects.

To edit a Freehand object, refer to the instructions for editing a Bezier curve. Holding down the Command key while resizing a Bezier curve within the freehand object constrains each tangent to a straight line in the original direction of movement from the drawing point.

To create a Freehand Object:

1. **Select the Freehand tool from the Toolbox.**
   The Pointer changes to a crosshair cursor.
2. **Click the mouse and drag to create your object.**
3. **Release the mouse button.**
   Object handles appear around the object to show it is selected.

Creating and Editing a Polygon

The Polygon tool creates irregularly shaped, multi-sided objects. A polygon is made up of multiple segments that are joined together by segment endpoints. Like a Bezier curve, and a freehand object, a polygon can be closed (the first and last segments are joined) or open (first and last segments are not joined).

To create a polygon:

1. **Select the Polygon tool from the Toolbox.**

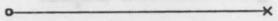
   The Pointer changes to an x.

2. **Click the mouse where you want the polygon to begin.**

   A small circle marks the starting point.

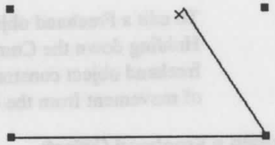
3. **Move the mouse until the x on the screen is where you want the first segment of the polygon to end, then click again.**

   A dotted line appears. You can drag this point to get it just where you want it before releasing the mouse button. The first segment of the polygon appears when you release the mouse button.



4. **Move the mouse and click again to create the second segment.**

   At this point, object handles appear to indicate the boundaries of the object.



5. **Continue moving and clicking the mouse until you have created the number of segments you want in the polygon.**

   You can close the polygon by clicking the first point, but you do not have to close the polygon to finish it.

6. **Click on the Pointer or any other tool in the Toolbox to de-select the Polygon tool when your shape is complete.**

You can move, resize, and modify a polygon as explained in other sections. You can also use "Edit Polygon" from the Draw menu to change the position of each of the segment points in your polygon.

To edit the segment points of a polygon:

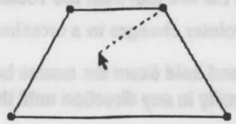
1. **Click on the Pointer tool, then select your polygon.**

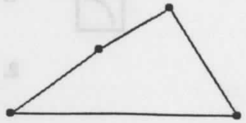
2. **Choose "Edit Polygon" from the Draw menu.**

   The object handles disappear, and round handles appear at each segment point of the polygon.

3. **Place the Pointer over each segment point you want to move and drag until the point is positioned where you want it.**

   When you drag, a dotted line appears to show you the new shape. DELTAGRAPH automatically reconnects the line segments that were connected in the original polygon. Segments that were not connected can be moved farther apart or closer together.





4. **When you have repositioned all the segment points you want moved, click outside the polygon to de-select it and end the edit.**

Creating and Editing an Arrow

Creating and editing an Arrow is similar to working with lines. In addition, a DELTAGRAPH arrow can have an arrowhead at either or both ends. "Edit Arrow" in the Draw menu controls the position and dimensions of the arrowhead(s).

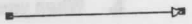
To create an arrow:

1. **Select the Arrow tool from the Toolbox.**

   The Pointer changes to a crosshair cursor.

2. **Click and hold down the mouse button to begin your arrow, then drag the mouse in the direction you want your arrow to point.**

   When you release the mouse, the arrow appears with object handles on each end.



While the arrow is selected, you can increase or decrease its length or change its direction by dragging the handles. When you drag a handle or move the arrow, the Pointer changes to a crosshair with arrows.

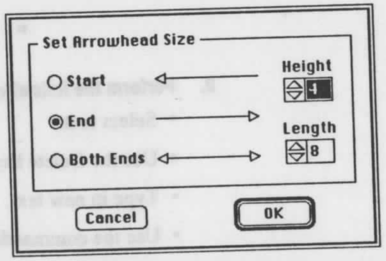
You can move, resize, and modify an Arrow as explained in other sections. The shaft of an arrow has no area to fill, but the arrowhead has a fill area whose pattern and colors can be edited. You can also use "Edit Arrow" from the Draw menu to add arrowheads to either or both ends of the arrow and to change the length and height of the arrowhead.

To learn more about	**refer to**
Changing the width, color, or pattern of a line or the fill of an object	"Changing the Attributes of a Draw, Text, or Chart Object" in this chapter
Changing a solid line to a dashed line	"Creating Dashed Lines" in this chapter

To edit an arrow:

1. **Select your arrow (its object handles should be visible).**
2. **Choose "Edit Arrow" from the Draw menu.**

   The following dialog appears:



Set Arrowhead Size

○ Start

● End

○ Both Ends

Height 4

Length 8

3. **Click the "Left End," "Right End," or "Both Ends" selection button, depending on where you want arrowhead(s).**

   "Right End" is the default setting.

4. **Enter a height from 3 to 30 points and a length from 4 to 40 points in the entry boxes.**

   The arrows in the dialog change with the numbers to show you the results of your settings.

5. **When you have the results you want, click "OK" to implement the change and return to the Chart window.**

   If you want to exit the dialog without changing the arrow, click "Cancel."

Working with Text Objects in a Chart Window

Occasionally you may want to create text that is not part of a chart or a page in the Notebook window — a title or some additional explanatory text for a chart perhaps, or display titles for a slide show. This is done in a Chart window.

Creating a Text Object

Before you can add text that is not part of a chart to a Chart window, you must create a Text object to contain it. Within a Text object, DELTAGRAPH feels as familiar as any Macintosh word processor. The key to creating and working with Text objects is the Text tool from the Toolbox.

A Text object can contain up to 32,000 characters. When selected with the Text tool this text can be edited and formatted, like all DELTAGRAPH text, with commands from the Edit and Text menus.

Whenever a Text object's insertion point is active, a Text ruler is visible across the top of the object. As in most word processors, this ruler controls tabs and margins, line and paragraph spacing, and text alignment.

The Text object itself has the same attributes as a Draw object: object handles that are visible when the object is selected; object boundary lines, which remain invisible unless you specify a new line width ("N" for None is the program default), and an object fill area (again, the default is "N" for None).

When selected with the Pointer tool, a Text object can be moved, sized, cut, copied, and deleted like any other object in a Chart window. You can also use the palettes in the Toolbox and most of the commands in the Draw menu to enhance and manipulate your Text objects.

To learn more about	refer to
Manipulating Text objects	"Manipulating Objects with the Pointer Tool" earlier in this chapter
Changing object attributes	"Changing the Attributes of A Draw, Text, or Chart Objects" later in this chapter

To enter text in a Chart window:

T

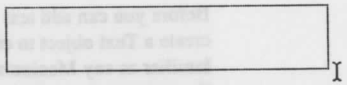
1. **Select the Text tool from the Toolbox.**

   The Pointer changes to an I-beam cursor.

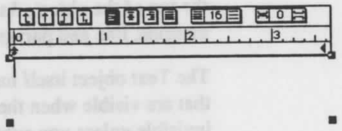
2. **Click and hold down the mouse button to begin your Text object.**

3. **Drag a rectangle area with the mouse to contain your text.**

   To help you draw the Text object in the appropriate size, a dotted line appears as you drag the mouse.



When you release the mouse button, object handles appear to show the boundaries of your Text object. A Text ruler is visible just over the Text object and an insertion point is blinking in the upper left-hand corner of the text area.



4. **Type your text.**

   You can enter up to 32,000 characters per Text object.

   As you type, the insertion point moves to the right and automatically jumps down to the beginning of the next line after it reaches the right boundary of the Text object. When you reach the bottom boundary, the text block expands vertically to accommodate your text.

5. **When you are done entering text, click outside the Text object to de-select it.**

   The object handles and the Text ruler disappear, leaving only the text.

6. **If you want to resize the Text object, use the Pointer tool to re-select it and drag one of the object handles until you have the size and shape you want.**

   Resizing the Text object has no effect on the size of the type within, although the text rewraps to fit the new size and shape.

Formatting and Editing Text in a Text Object

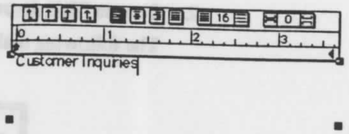
Each character within a Text object can be a different font, size, style, and/or color. When you set alignment, however, it affects all the text within the object.

You can set text attributes one at a time for one or more selected Text objects with commands from the Text menu, or you can set any or all attributes for selected text only from the "Set All" dialog that appears when you choose "Set All..." from the Text menu.

To edit text in a Text object:

1. **Double-click on the text block you want to change, or select the Text tool from the Toolbox and click on the text to position the insertion point.**

   The Text ruler appears above the text, and you can see the insertion point blinking.



2. **Perform the following actions as needed:**
   - Select text.
   - Use the Delete key to erase mistakes.
   - Type in new text.
   - Use the commands in the Edit menu as you would in any word processor.

To change text attributes in a Text object:

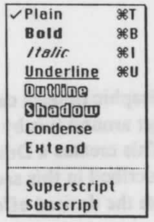
1. **Double-click on the text block you want to change, or select the Text tool from the Toolbox and click on the text to position the insertion point.**

   The Text ruler appears above the text, and you can see the insertion point blinking.

2. **Select the text you want to format.**

   You can select text by clicking and dragging, double-clicking on a particular word, or choosing "Select All" (⌘–A) from the Edit menu.

   If you want to change all the text within one or more Text objects, select the object(s) themselves.



3. **Choose Font, Size, Style, Color, and Alignment from the Text menu as needed and make your selections from the hierarchical menus that appear.**

   With the exception of the "Alignment" command, which affects all the text in a Text object regardless of what is selected, these commands apply to selected text only.

   "Font," "Size," and "Style," work exactly as they would in any word processor; color options are explained later in this chapter.

   The "Set All..." command in the Text menu displays a dialog so you can set all the attributes for selected text in a Text object at the same time.

4. **When you are finished formatting your text, press Enter or click outside the Text object to de-select it.**

To learn more about	refer to
Commands in the Text menu	"Text menu" in Chapter 16

Using the Text Ruler

Whenever the insertion point is active within a Text object, DELTAGRAPH displays a ruler across the top of the text (see Fig. 10-2). This Text ruler has simple settings that let you reset tabs and margins, text alignment, and spacing between lines of text and paragraphs. These settings affect all text within the object.

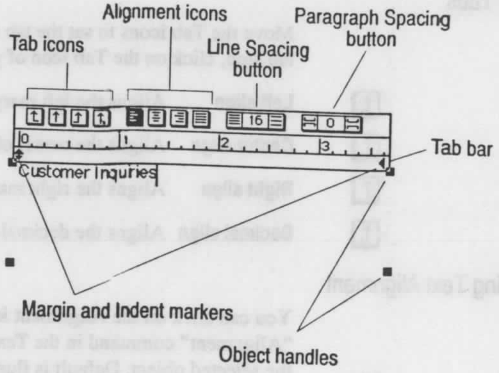


FIGURE 10-2. THE TEXT RULER

Setting Margins and Paragraph Indents

DELTAGRAPH's Text ruler has markers that make it easy to change these margins and the setting for paragraph indents. Like the other functions of the Text ruler, these settings affect everything within the selected Text object.

Note: When you resize a Text object, the margins and any specified paragraph indent move by a corresponding amount.

⬍ **Left Margin and Indent markers** This icon is a combination of two markers, which start out lined up together with the left edge of the Text object. These markers are moved separately.

▲ **Left Margin marker** All left-aligned text, with the exception of indented first lines, lines up with this marker. Drag the marker (the top half of the combination icon shown above) along the ruler to change the setting.

↓ **Indent marker** Controls only the first line of each paragraph. Drag the marker (the bottom half of the combination icon shown above) along the ruler to change the setting; position it to the right of the Left Margin marker to create a standard paragraph indent; position it to the left of the Left Margin marker to create a hanging indent; line it up with the Left Margin marker if you want no indent at all.

◀ **Right margin marker** Sets the limitations for the right edge of each line of text. Drag the marker along the ruler to change the setting.

Setting Tabs

Move the Tab icons to set the tab stops for all text within the object. To select a tab stop, click on the Tab icon of your choice and drag in into the Tab bar.

Left align	Aligns the left margin of tabbed text to the tab.
Center align	Aligns the center of tabbed text to the tab.
Right align	Aligns the right margin of tabbed text to the tab.
Decimal align	Aligns the decimal point of tabbed text to the tab.

Changing Text Alignment

You can click on the Alignment icons on the Text ruler instead of using the "Alignment" command in the Text menu to change alignment for all text within the selected object. Default is flush left.

Flush left	Every line of text aligns with the left margin.
Centered	Every line of text centers within the object's margins.
Flush right	Every line of text aligns with the right margin.
Justified	Adjusts each line of text to fill the space between margins or paragraph indents.

Changing Spacing between Lines and Paragraphs

DELTAGRAPH makes it possible for you to adjust the spacing, often referred to as leading, between lines and paragraphs in one-point increments. (A point is a typesetter or printer's measurement equal to 1/72 of an inch.)

Line Spacing button Distributes space proportionally above and below each line within a paragraph. The center of the button shows the current setting. To *de*crease the spacing, click to the left; to *in*crease the spacing, click to the right.

Paragraph Spacing button Distributes space proportionally above and below each paragraph within a text object. The center of the button shows the current setting. To *de*crease the spacing, click to the left; to *in*crease the spacing, click to the right.

Changing the Attributes of a Draw, Text, or Chart Object

The Color, Pattern and Line palettes in DELTAGRAPH's Toolbox makes it easy to add special design flourishes to any Draw, Text, or Chart object. You can change the following attributes with the appropriate palettes:

- line pattern of an object (the default is plain, black for Draw and Chart objects, "N," or none, for Text objects)
- fill pattern of an object (the default is white for Draw and Chart objects, "N," or none for Text objects)
- line width of an object's boundary lines (the default is 1 point)
- foreground and background line colors
- foreground and background fill colors

Note: Although the attributes of Imported Graphic objects cannot be changed in DELTAGRAPH, you can sometimes get around this by drawing an outline of the object in DELTAGRAPH This creates a Draw object that you can modify in any of the ways described in this section and then layer with the original graphic to create the desired effect.

To learn more about	**refer to**
Changing lines to dashed lines	"Creating Dashed Lines" later in this chapter
Adding special blends to objects	"Adding Special Blends to Objects" later in this chapter
Placing a drop shadow behind objects	"Adding Drop Shadows to Objects" later in this chapter

Changing Line Widths

DELTAGRAPH line widths are set in points. (One point is 1/72 of an inch.) The line width, color, and pattern of each line can be changed individually or as a group.

You can use the Line-Width palette in the Toolbox to change the line widths of the following:

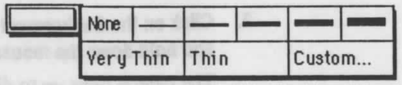
- chart axes
- chart grids
- chart tick marks

- chart data graphics
- lines
- arrows
- any Draw, Text, or Chart object's boundary lines

To edit the line width of one or more objects:

1. **Select the object(s) you want to change.**
2. **Select the Line-Width palette from the Toolbox to display the pop-up menu.**

   You see a choice of line widths including "None," "Very Thin" (0.25 points), "Thin" (0.5 points), 1 through 5 points represented graphically, and "Custom..."



   To specify a custom width, select "Custom..." from the palette. DeltaGraph displays the "Set Pen Weight" dialog. Enter a whole number or decimal from 0 to 8 or use the direction arrows to scroll through the standard options. (The smallest pen weight is 1/256 of a point or .003906.)

3. **Drag the Pointer across the options and release the mouse to make your selection.**

   The selected line(s) change accordingly.

Using the Pattern Palettes

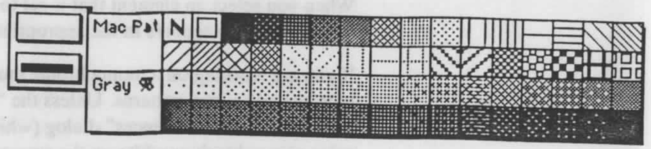
There are two pattern palettes in the Toolbox. The upper one, the Fill-Pattern palette, lets you set the patterns for the fill areas of objects. The lower one, the Line-Pattern palette, lets you specify patterns for the lines of your objects.

The pattern palettes always display the current pattern for the selected object. If multiple objects or no objects are selected, the default pattern is displayed.

To change the fill or line pattern of one or more objects:

1. **Select the object(s) you want to change.**
2. **Click on the Fill or Line-Pattern palette in the Toolbox and hold down the mouse button.**

   The palette pops up to display the available choices.



Both palettes contain 64 patterns that can be applied to any Draw or Text object. The top two rows contain standard Mac patterns; the bottom two rows contain PostScript grayscale patterns. If you are using a PostScript printer, any of these selections yields a very smooth gray pattern in your printed document.

3. **Drag the pointer across the patterns and release the mouse to make your selection.**

   The selected object(s) reflect your change.

Using the Color Palettes

There are two sets of color palettes in the Toolbox: the Fill-Color palettes and the Line-Color palettes. Each palette includes two squares: the Foreground squares (upper left) are for setting foreground color; the Background squares (lower right) are for setting background color.

The foreground color can be thought of as the pattern itself, such as checks or lines; the background color is what the pattern rests on.

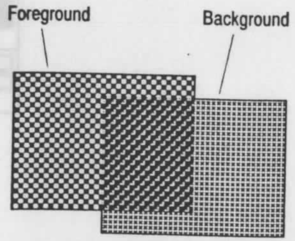


Figure 10-3. Background and Foreground Colors

Initially, the default foreground color is black (any part of an object that is black is part of the foreground), and the default background color is white (any part of the object that is white is part of the background).

When you select an element that is set to a different foreground or background color, that color appears in the appropriate palette of the Toolbox.

If you are working on a monochrome monitor, colors in the palette are represented as gray patterns. Unless the "Use patterns for colors" option is selected in the "Preferences" dialog (which is by default), objects assigned a color appear black or white on the screen and when printed on a black-and-white printer. Colors appear as specified when you view or print your document on a device that supports color.

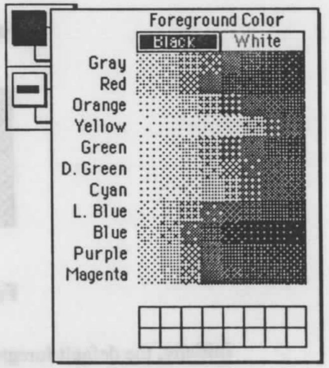
If you are using an Apple LaserWriter printer and LaserWriter driver 6.0 or higher, your color settings can be converted to grayscale patterns by choosing the "Color/Grayscale" option when you print.

To learn more about	refer to
Setting color preferences	"Setting Chart Default Preferences" in Chapter 6
Printing colors	"Printing in Color" in Chapter 15

To change the foreground color of an object or line:

1. **Select the object(s) you want to change.**
2. **Click on the Foreground square of one of the color palettes in the Toolbox and hold down the mouse button.**

   The palette pops up to display the available color choices.



The color palette includes 90 different colors, including black and white, and up to 16 custom colors. The Custom Colors palette is at the bottom of the color palette.

3. **Drag the Pointer across the colors and release the mouse to make your selection.**

   The selected object(s) reflect your change.

Note: To make a solid color, be sure that Black in the Fill-Pattern palette is selected. If White is selected, choosing a color automatically changes the selected to solid black.

To change the background color of an object or line:

1. **Select the object(s) you want to change.**
2. **Click on the Background square from one of the color palettes in the Toolbox and hold down the mouse button.**

   The palette pops up to display the available color choices.
3. **Drag the Pointer across the colors and release the mouse to make your selection.**

   The color appears in the background portion of the pattern, creating an effect that is a combination of the foreground and background colors.

   By selecting a 50% gray pattern in the Fill-Pattern palette, you can create "new" colors by combining a foreground and a background color.

Note: Background color shows on a selected element only when the element's fill pattern is not solid.

Working with Custom Colors

The "Custom Colors..." command in the Edit menu displays a dialog so you can create up to 16 custom colors. Once created, these colors appear at the bottom of every color palette in DELTAGRAPH so you can select and apply them as you would any other color.

Each custom color is based on one of the four standard color models: RGB, CMY, CMYK, or HSL. After selecting a model in the "Custom Colors" dialog, you "mix" your color by using a percentage of each of the available base colors or contrast options.

Because custom colors are unique to each DELTAGRAPH file, you should record the specifications for any color you might want to reproduce in another file or application.

To mix a custom color:

1. **(Optional) Select one or more object(s) from the Chart window.**

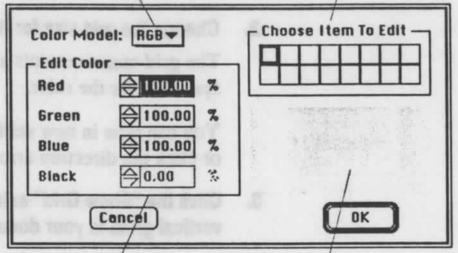
   It is not necessary to select any objects before creating a custom color.

2. **Choose "Custom Colors..." from the Edit menu.**

   The following dialog appears:

Press to display a list of color models.

The Custom Colors palette displays all existing custom colors. Click on a square to edit or create a custom color.



Red 100.00 %
Green 100.00 %
Blue 100.00 %
Black 0.00 %

Change the default percentages to mix your custom color.

Color sample changes as you mix your Custom Color.

FIGURE 10-4. THE "CUSTOM COLORS" DIALOG

3. **Select a color model from the pop-up menu next to "Color Model."**

   Options available in the "Edit Color" section are different for each model. Use one of the following models to create your custom color:

   RGB Uses varying percentages of red, green, and blue.

   CMY Uses varying percentages of cyan, magenta, and yellow.

   CMYK Uses varying percentages of the four process colors — cyan, magenta, yellow, and black.

   HSL Uses varying percentages of hue, saturation, and light.

4. **Enter the appropriate percentages next to the color/contrast options or click the direction arrows to scroll through the values.**

   The dialog's color sample and the selected square in the Custom Colors palette change as you modify the color.

5. **You can create up to 16 custom colors by clicking on a different square within the Custom Colors palette and repeating steps 3 and 4.**

6. **Click "OK" to save your colors and return to the Chart window.**

   If you want to exit the dialog without creating any colors, click "Cancel."

To edit a custom color:

1. **Choose "Custom Colors..." from the Edit menu.**

2. **Click on the color you want to change in the Custom Colors palette at the top of the dialog.**

   The color is displayed in the color sample area of the dialog.

3. **Select a new color model from the pop-up menu if necessary.**

4. **Change the percentage values of colors or contrast as necessary.**

   The dialog's color sample and the selected square in the Custom Colors palette change as you modify the color.

5. **Repeat steps 2–4 for each color you want to edit.**

6. **Click "OK" to implement the changes and return to the Chart window.**

   If you want to exit the dialog without making any changes, click "Cancel."

Using the Draw Menu

The Draw menu contains commands that help you manipulate objects in the Chart window and add some nifty graphic effects to your Draw, Text, and Chart objects.

To learn more about	refer to
"Slide Draw Delay..."	"Adding 'Draw Delay' to Slide Elements" in Chapter 13
Editing Draw objects	"Creating and Editing Draw Objects" in Chapter 10

Changing Rulers and Grids in the Chart Window

DELTAGRAPH's Chart window has an underlying grid for aligning objects. Select "Rulers & Grids..." to display a dialog that lets you show, hide (default), or change the size of this grid. The dialog also has an option for showing/hiding ruler along the top and left side of the Chart window (see Fig. 10-5). You can choose from the following measurement scales:

Inches	The default setting
Centimeters	.39 inches, or 25/64 of an inch
Points	1/72 of an inch
Picas	12 points, or 1/6 of an inch

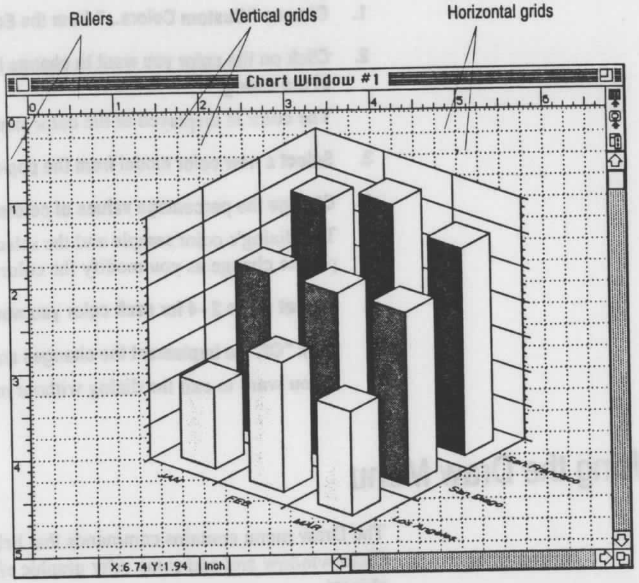


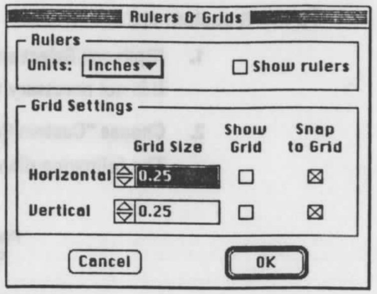
FIGURE 10-5. RULERS AND GRIDS IN THE CHART WINDOW

The "Snap to Grid" option, when selected, compels all objects to align to the Chart window's underlying grid (whether visible or not) when you create, resize, or move them. You can override this command temporarily by holding down the Option key while manipulating objects.

To turn the grid and the "Snap to Grid" option on and off:

1. **Choose "Rulers & Grids..." from the Draw menu.**

   The "Rulers and Grids..." dialog appears, with defaults set as shown below. An X in a selection box indicates the option is on.



Rulers & Grids

Rulers

Units: Inches ☐ Show rulers

Grid Settings

	Grid Size	Show Grid	Snap to Grid
Horizontal	0.25	☐	☒
Vertical	0.25	☐	☒

2. **Change the grid size for the horizontal and/or vertical grid lines if necessary.**

   The grid measurements are in inches, regardless of the measurement scale specified for the ruler.

   You can type in new settings, from a minimum of 0.1" to a maximum of 2", or click the direction arrows to scroll through the values.

3. **Click the "Show Grid" selection boxes if you want to see the horizontal and/or vertical grids in your document. (Click again to de-select this option.)**

4. **Click the "Snap to Grid" selection boxes to activate/disable this option.**

   When activated (the default), all objects in the Chart window align automatically to the horizontal and/or vertical grid lines when being created, moved, or resized.

   You can temporarily override "Snap to Grid" by holding down the Option key while manipulating objects.

5. **Click "OK" to implement the changes and return to the Chart window.**

   If you want to exit the dialog without making any changes, click "Cancel."

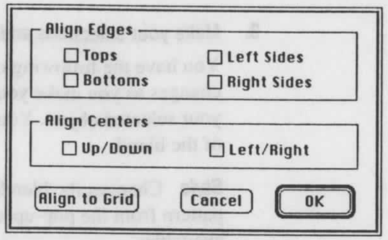
Aligning Objects

Use "Align..." to line up selected objects along their edges, their centers, and/or the drawing grid. All objects align by the object handles that define their boundaries.

To align objects to each other:

1. **Select the objects you want to align.**
2. **Choose "Align..." from the Draw menu.**

   The following dialog appears.



3. **Make your selections as needed (see Fig. 10-6).**

You have the following options:

Align Edges Aligns the selected objects along their top, bottom, left, or right edges.

Align Centers Aligns the selected objects along a horizontal center point (Up/Down) or a vertical center point (Left/Right).

Align to Grid Click here to align the selected objects to the drawing grid.

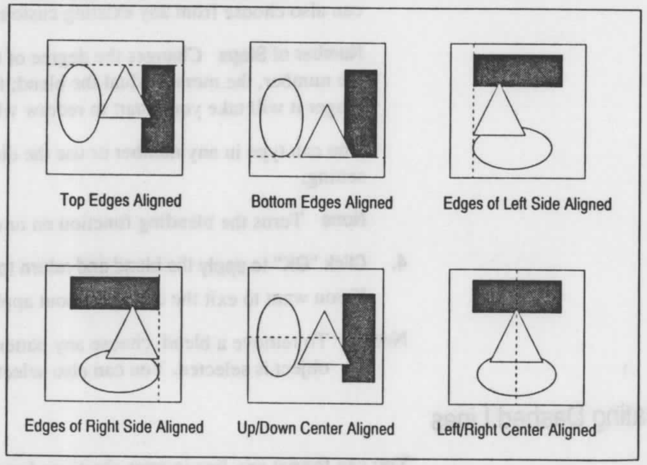
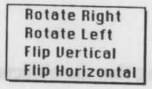

Top Edges Aligned
Bottom Edges Aligned
Edges of Left Side Aligned
Edges of Right Side Aligned
Up/Down Center Aligned
Left/Right Center Aligned

FIGURE 10-6. OBJECT ALIGNMENT OPTIONS

4. **Click "OK" to implement the changes and return to the Chart window.**

If you want to exit the dialog without making any changes, click "Cancel."

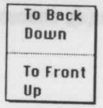
Rotating Draw and Text Objects



"Rotate" automatically rotates a Draw or Text object 90 degrees to the left or right, or flips a Draw object 180 degrees vertically or horizontally. You cannot rotate or flip charts or imported graphics.

To rotate a Draw or Text object: select the object(s), then choose "Rotate" from the Draw menu and select one of the options from the hierarchical menu that appears. You must return a Text object to the normal upright position in order to edit the text.

Layering Objects



Layering allows you to place one or more selected objects on top of or underneath another object. Use the "Send" command to reorganize your objects to produce different effects.

To move any object up or down layers: select the object(s) you want to layer, then choose "Send" from the Draw menu and select one of the options from the hierarchical menu that appears.

Note: DELTAGRAPH remembers layers in the same order that you created or placed each object. If it appears that an object is not moving, apply the command again; you might have drawn an object in another part of your document that is inserting a layer between the objects you're trying to move.

Grouping and Ungrouping Objects

Grouping allows you to treat several individual elements as one object. This is useful if you want to move several objects and maintain their relative spacing.

To group objects:

1. **Select the object(s) you want to group.**

   Object handles appear around each selected object.

2. **Choose "Group" from the Draw menu.**

   The objects are now marked by one set of object handles, showing that they are being treated as one object.

To ungroup objects:

1. **Select the object you want to ungroup.**
2. **Choose "Ungroup" from the Draw menu.**

   Object handles appear around each object, showing that the objects are returned to their individual state.

Locking and Unlocking Objects

Use the "Lock" command to keep any object from being moved, deleted, resized, or edited.

To lock one or more objects, select the object(s) you want to lock, then choose "Lock" from the Draw menu. To unlock selected object(s), choose "Unlock," from the Draw menu.

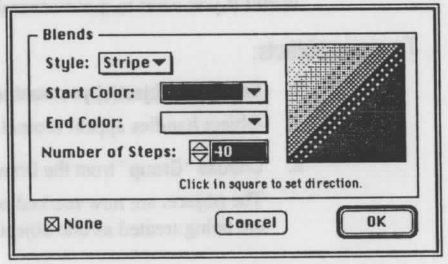
Adding Special Blends to Objects

You can use the "Blends..." command in the Draw menu to create some remarkable effects with patterns and colors. You can choose from six different blending patterns to blend two colors in a user-specified number of steps. You can apply these blends to Draw, Text, and Chart objects.

To apply a special blend:

1. **Select the object(s) you want to change.**
2. **Choose "Blends..." from the Draw menu.**

   The following dialog appears, with defaults set as shown below.



Blends

Style: Stripe

Start Color:

End Color:

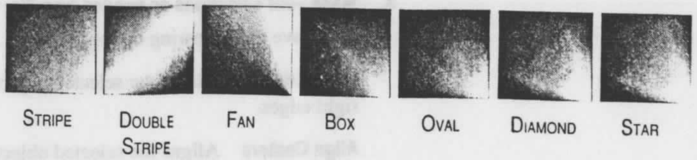
Number of Steps: 40

Click in square to set direction.

3. **Make your selections and enter data as needed.**

   You have the following options. The square on the right side of the dialog changes as you make your selections so you can see how they will affect your selected object. You can click on the square to change the focal point of the blend.

   Style Changes the blending pattern; default is "Stripe." Select a blending pattern from the pop-up menu. The following blending patterns are available:



   Start Color/End Color Selects the starting and ending colors of the blend. To select a color, click on the pop-up menu to display a color palette. You can also choose from any existing custom colors.

   Number of Steps Changes the degree of the blend; default it 40. The larger the number, the more gradual the blend; the more gradual the blend, the longer it will take your chart to redraw whenever the screen refreshes.

   You can type in any number or use the direction arrows to change this setting.

   None Turns the blending function on or off; default is off.

4. **Click "OK" to apply the blend and return to the Chart window.**

   If you want to exit the dialog without applying a blend, click "Cancel."

Note: To remove a blend, choose any pattern from the Toolbox while the object is selected. You can also select "None" from the dialog.

Creating Dashed Lines

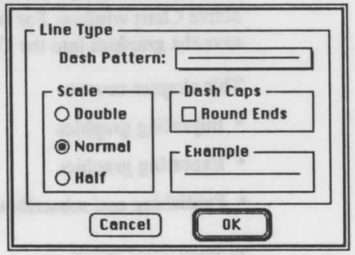
You can format any line in your charts or drawing objects or the boundary lines of any Draw, Text, or Chart object with special Postscript dash patterns.

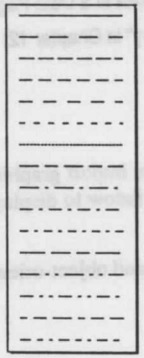
To modify the color, pattern, or width of these special dashed lines, use the appropriate palettes in the Toolbox.

To changed solid lines to dashed lines:

1. **Select the object(s) you want to change.**
2. **Choose "Dashes..." from the Draw menu.**

   The following dialog appears, with defaults set as shown below.





3. **Make your selections as needed.**

   You have the following options. The line in the "Example" window changes to reflect your selections.

   Dash Pattern Select a dash pattern from the pop-up menu.

   Scale Elongates or reduces the dash in the pattern to create different versions of the same pattern. You can set the scale of the dash pattern to Double, Normal, or Half-sized.

   Dash Caps Rounds one end of the selected line. Clicking in the selection box activates/disables this option; default is off.

4. **Click "OK" to apply the dash pattern and return to the Chart window.**

   If you want to exit the dialog applying any dashes, click "Cancel."

Adding Drop Shadows to Objects

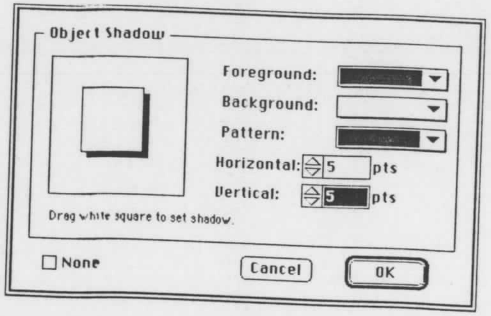
The "Shadows..." command places a drop shadow behind any Draw, Text, or Chart object in the Chart window.

Colors and patterns for the shadows are selected from palettes in the "Shadows..." dialog. These palettes are identical to those in the Toolbox.

To place a drop shadow behind an object:

1. **Select the object(s) you want to change.**
2. **Choose "Shadows..." from the Draw menu.**

   The following dialog appears, with defaults set as shown below.



Drag white square to set shadow.

3. **Make your selections and enter data as needed.**

   You have the following options. The square on the left of the dialog changes to reflect your selections.

   Foreground and Background Displays a color palette so you can choose foreground and background colors for the shadow.

   Pattern Displays a pattern palette so you can select a pattern or gray scale to use as the shadow.

   Horizontal and Vertical Sets the offset of the shadow. You can drag the white box on the left, type in any number from -15 to 15 points, or click the direction arrows to change the shadow size.

   None Turns the shadow function on or off; default is off.

4. **Click "OK" to apply the shadow and return to the Chart window.**

   If you want to exit the dialog without applying a shadow, click "Cancel."

11 Importing and Exporting Graphics

DeltaGraph makes it easy to import and export graphics to and from the active Chart window. For frequently used imported graphics, you may want to save the graphics into the Custom Library for easy access and convenience.

This chapter covers:

- Importing graphics
- Exporting graphics
- Publishing and subscribing to graphics with System 7

To learn more about	refer to
Importing and exporting data	Chapter 4, "Organizing Data in a Data Page"
The Custom Library	"Using the Custom Library" in Chapter 12

Importing Graphics

You can use the "Import" command in the File menu to import graphics from other applications. Choose "Import" from any Chart window to display a hierarchical menu with the following formats:

PICT	Standard Macintosh format for bit-mapped and object-oriented graphics
EPSF	Encapsulated PostScript File
Movie	QuickTime movies consisting of animated graphics and sound.

To import a graphic into DeltaGraph:

1. **Make sure the Chart window you want to import the graphic into is active.**

2 **Choose "Import" from the File menu and — depending on the file format of the graphic you want to import — select "PICT," "EPSF," or "Movie."**

The standard Macintosh dialog for opening a document is displayed.

3. **Select the file you want to import, and click "Open."**

   The graphic arrives in the upper left-hand corner of the Chart window, on top of anything already in that area.

From now on, DELTAGRAPH treats the graphic as an Imported Graphic object. When selected, it can be moved, resized, and manipulated with many of the commands in the Edit and Draw menus: you can cut, copy, paste, clear, and duplicate it; align, layer, and lock/unlock it; and group it with other objects in the window.

You can use the "Ungroup" command to separate it from other objects it has been grouped with, but it cannot be used to separate individual elements within the original PICT or EPSF file.

To learn more about	refer to
Objects in the Chart window	Chapter 10, "Creating, Editing, and Manipulating Objects in a Chart Window"

Exporting Graphics

If you want to export DELTAGRAPH charts and objects to another application, you can use the "Export" command in the File menu to save the contents of a DELTAGRAPH Chart window into one of the following file formats:

Adobe Illustrator 1.1 Readable by Adobe Illustrator and Aldus FreeHand™ 2.0 and newer.

EPSF Encapsulated PostScript File.

PICT Standard Macintosh format for bit-mapped and object-oriented graphics.

Scrapbook Only slides from the Slide Sorter window can be exported to the Scrapbook.

You can export the entire contents of the Chart window or just individual objects. Objects in the Chart window must be selected before exporting.

Here's a list of things to keep in mind when deciding on a format for exporting DELTAGRAPH graphics.

- Objects exported as PICT files can be modified in any drawing application (such as MacDraw II or Canvas) that converts PICT files to its own format.
- Objects exported as Adobe Illustrator files can be modified by Illustrator 1.1 and newer and Aldus Freehand 2.0 and newer (You might need to ungroup the graphic to modify it).
- Objects exported as EPSF files can*not* be modified after being exported, except to be resized.
- Some drawing packages do not recognize all of DELTAGRAPH's patterns. You might need to adjust some patterns and text when you open an exported DELTAGRAPH file in another application.
- When you save a chart in Adobe Illustrator format, graduated fills are converted to a solid color and some Macintosh patterns are not available in the importing application.
- When you save a chart in an Illustrator format, the text in a Text object must be one font, one size, and all one style. If you try to save a Text object with a combination of two or more fonts or sizes, the text is converted to the font, size, and style of the first character in the object.
- When you save a chart in EPSF format, all the gray shading, colors, special fills, and projected text are preserved.
- Because the PostScript font name is different from the Macintosh font name, when you save a chart in the EPSF file format, you may have trouble printing the PostScript fonts. To help the output device in recognizing the fonts used in the exported EPSF file, you can trick it by creating a text block containing the font(s) used (you can use a space character).
- When you save a chart in the PICT format, keep in mind that PICT graphics cannot display the perspective text on a 3-D chart. You can use the "Options..." command in the Chart menu to turn off projected ticks and labels; they are then aligned at 90-degree angles.

To export graphics:

1. **Make sure the Chart window containing the objects you want to export is active and the objects are selected. If you are exporting from the Slide Sorter window, make sure the slide is selected.**

2. **Choose "Export" from the File menu and select "Adobe Illustrator 1.1," "EPSF," "PICT," or "Scrapbook" from the hierarchical menu.**

   The Scrapbook format can only be accessed from the Slide Sorter window.

   A variation of the standard Macintosh "Save As" dialog is displayed so you can name and save the file you're exporting. DELTAGRAPH displays a default name for the document under "Export document as:" in the dialog; it consists of the active Chart window name, a period, and an abbreviation of the format you chose ("ill," "eps," or "pict").

3. **Use the default name or enter another name, choose your destination, then click "Save" to create a file you can use in another application.**

   The graphic is written to the selected disk and folder under the format and name you specified.

Publishing and Subscribing to Graphics

DELTAGRAPH supports Publish and Subscribe with Macintosh System 7. Publish and Subscribe is another form of linking which allows you to share data and graphics between documents in other applications that also support this feature.

Publish and Subscribe commands are found in the Edit menu; if you are not using System 7.0 these commands do not appear.

Published files are referred to as editions. Within the Chart window you can publish any objects within the Chart window to be subscribed to by other applications. In the Chart window you can subscribe to published editions created by other applications.

When changes are made to a published edition, and the file containing the edition is saved, all files linked to that edition also change.

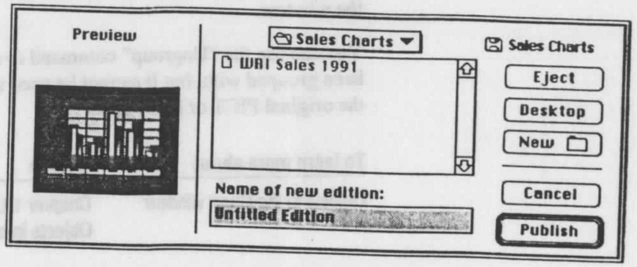
Publishing Graphics

You can create a published edition using the "Create Publisher..." command in the Edit menu. When you publish your graphics, the edition you created is linked to the graphics, so any changes you make to the published graphics are also made to the published edition.

To publish an edition:

1. **Select the object(s) within the Chart window you want to publish.**
2. **Choose "Create Publisher..." from the Edit menu.**

   The following dialog appears with a preview of the selection to be published.



Name of new edition:
Untitled Edition

3. **Enter the name you want to give your published edition and select a location.**

   You can create a new folder using the "New" button.

4. **Click "Publish" to publish the object(s).**

   An edition is created containing the objects you just published. You can now subscribe to the edition from any application supporting publish and subscribe.

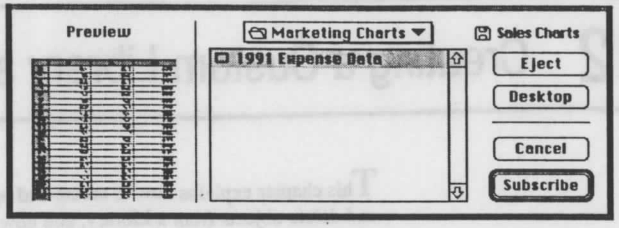
Subscribing to Published Editions

The edition to which you are subscribing must be published within the other application. Refer to the owners manual for that application to find out how to publish information. A Chart window in DELTAGRAPH must be active in order to subscribe to the published edition.

To subscribe to an edition:

1. **Choose "Subscribe to..." from the Edit menu.**

   The following dialog appears containing a list of all published editions. Double-click on an edition to display a preview.



2. **Select the name of a Published edition, and click "Subscribe" to subscribe to the edition.**

   The subscribed edition appears on the Chart window. A dark border surrounds the data indicating it is subscribed to. You can remove the border by selecting "Hide Borders..." from the Edit menu.

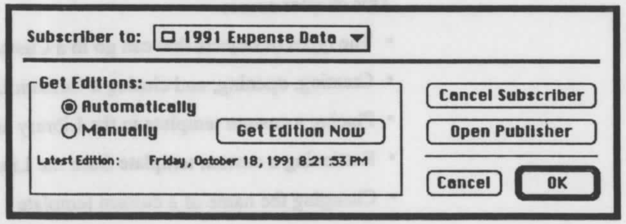
Using the "Subscriber Options..."

Subscriber options are used to determine when updates to editions are made, to cancel a subscriber, or to access the publisher.

To set Subscriber options:

1. **Select the subscribed edition in the Chart window.**
2. **Choose "Subscriber Options..." from the Edit menu.**

   The following dialog appears with the name of the subscribed edition at the top.


Subscriber to: 1991 Expense Data

Get Editions:
● Automatically
○ Manually

Latest Edition: Friday, October 18, 1991 8:21:53 PM

3. **Make your selections as needed.**

   You have the following options:

Get Editions Controls when you will receive updates to the subscribed edition. If "Automatically" is selected, your edition is updated every time the publisher changes the edition. If "Manually" is selected, you must click "Get Edition Now" to update your edition.

Cancel Subscriber Removes your link to the publisher, but the graphic still remains in the Chart window.

Open Publisher Displays the publisher file to your subscribed edition.

4. **To change your subscriber options, click "OK."**

   If you want to exit the dialog without changing the options, click "Cancel."

To learn more about	refer to
Macintosh System 7	"Apple Macintosh System 7 User's Guide"
Subscribing to Data	"Subscribing to Data" in Chapter 4

12 Creating a Custom Library and Backgrounds

This chapter explains how to create and open a Custom Library, how to add and delete objects from a Library, and how to create and use custom backgrounds.

After you set the font, size, color, and style for all the labels on a chart, choose colors and patterns for each data series, and set the grids, ticks, and axes the way you like them, the Custom Library allows you to store the template so you can reuse all of that hard work over and over again. This saves you from having to redo the same operations for your next chart. When you plot your next chart, you can choose a chart from the Custom Library, plot the new data, and a chart is created with your favorite formatting already in place.

You can also save your chart templates with or without data. This allows you to transfer data as well as charts to different DeltaGraph files.

Backgrounds can be used to standardize the background of any or all of your Chart windows. You can create a background separate from the objects in the Chart window then apply it to one or more Chart windows in the file. This allows you to set up your logo, border and anything else you want to appear the same in each Chart window, then select which Chart windows to apply the background to. When you change the background, all of the Chart windows using the same background are also changed.

This chapter covers:

- The types of objects that can go in a Custom Library
- Creating, opening, and closing a Custom Library
- Placing a custom template in the Library and naming it
- Retrieving a custom template from the Library
- Changing the name of a custom template
- Deleting a custom template from the Library
- Creating and using backgrounds in the Chart window
- Applying backgrounds to a Chart window

Using the Custom Library

There is no limit to the number of Custom Libraries you can have because each Library is saved separately from the DeltaGraph file. This allows you to create your own personal Library and access it from any DeltaGraph file you're working in. You can display and access Custom Libraries from either the Notebook or Chart windows. Each Custom Library can contain up to 64 custom templates.

You can have an unlimited number of Custom Libraries open at a time (dependent on memory available). In addition, a special library called "Standard Library," is automatically opened when DeltaGraph is launched. The name "Standard Library" can be given to any of your DeltaGraph Custom Libraries to use this feature. Custom chart templates contained in this library are displayed in the various chart categories within the "Plot" dialog. (Choose "Plot..." from the Chart menu.)

You can store Text, Chart, Draw, Imported Graphic objects, or any combination of objects in a Custom Library. This allows you to create a standard background or logo size, saving importing and resizing time.

Elements from the Library are fully editable. When dragged from the Library, the templates can be edited, moved, and revised as they would if you had just created them.

To close a Library, click in the Close box on the left side of the Library Title bar.

Auto-Loading Libraries

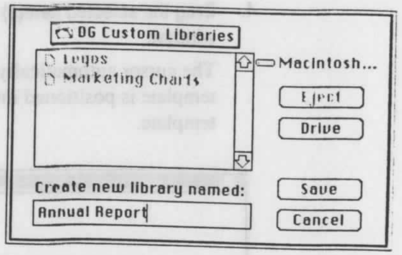
Custom Libraries can also be opened automatically when DeltaGraph is launched by simply placing them in the "AutoLibrary Folder." The names of up to four Custom Libraries appear at the bottom of the "Plot" dialog pop-up menu and custom templates containing charts appear when the Library name is chosen.

Creating a Library

To create a Library:

1. **Choose "Library" from the Windows menu and select "New..." from the hierarchical menu that appears.**

   A variation of the standard "Save As..." dialog appears. You can also press Shift and click on the Library icon on the left side of the Chart window to display the same dialog.



Create new library named: Annual Report

2. **Choose the destination and type in a name as desired.**
3. **Click "Save."**

   The Custom Library is saved to the specific disk and folder you have selected and an empty Custom Library window with the name you assigned appears in the upper right side of the Chart window.

The Custom Library

The Custom Library has all of the standard Macintosh window characteristics such as; a Scroll, Title bar, Zoom box, and a window resizing icon. Figure 12-1 shows examples of templates within a Custom Library. As you can see by the example you can have a wide variety of objects in your Library.

The title of your Custom Library appears in the Title bar and the titles of the custom templates appear below the templates. Naming your custom templates are explained later on in this chapter.

Whenever you resize the Custom Library window, the custom templates rearrange themselves to fit the dimensions of the window.

Per 12-4 e 12-5 vedere foglio successivo

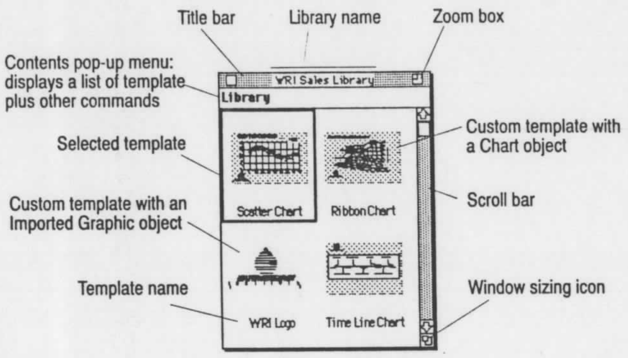


FIGURE 12-1. THE CUSTOM LIBRARY

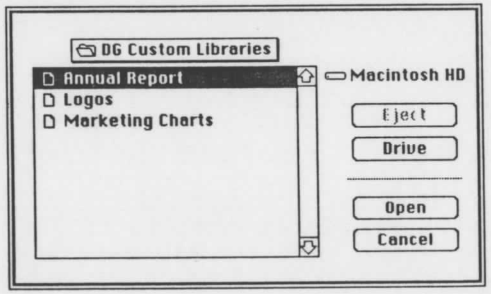
Opening an Existing Library

You can open any Custom Library from within any DELTAGRAPH file. Up to four Custom Libraries can be open at a time.

To open a Library:

1. **Choose "Library" from the Windows menu, and select "Open..." from the hierarchical menu.**

   The standard dialog for opening a file appears. You can also use the Library icon on the left side of the Chart window to display the same dialog.



2. **Locate the Library you want to open, then double-click on its name or highlight the name and click "Open."**

   The Library window appears in the upper right side of the window. You can move and resize the Library window as you would a Chart window. The names of any Libraries containing one or more charts appears at the bottom of the "Plot" dialog. The names of up to four open Libraries appear in the "Plot" dialog.

Placing a Custom Template into a Library

Templates placed into a Custom Library can be used over and over again. Each element in the template remains separate and can be altered just as it was before you placed it in the Library. Procedures for storing any combination of Chart, Draw, Imported Graphic, or Text objects are all the same.

Charts grouped with any other objects cannot be placed into a Custom Library. Custom colors used within a custom template cannot be transferred to other DELTAGRAPH files. The default fill for these objects is white. You can recreate the custom color in a different DELTAGRAPH file by copying the color model percentages for the custom color(s) and entering them into the new DELTAGRAPH file.

To learn more about	refer to
Custom colors	"Working with Custom Colors" in Chapter 10

To add a custom template to the Library:

1. **If you want the custom template to contain a chart, plot the chart and format it the way you like.**

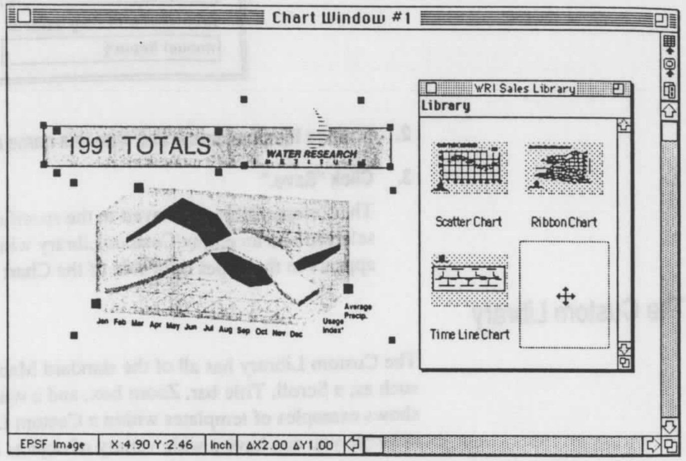
2. **Create a new or open an existing Custom Library.**

3. **Select all object(s) you want included as a single custom template.**

   Selecting a chart includes all axis labels and titles, and chart elements. You must select Text, Draw, and Imported Graphic objects, in addition to a Chart object, if you want them included in the same custom template. You can also use the "Group" command to group objects before you put them in the Library. Objects can be ungrouped using the "Ungroup" command once they are placed in the Chart window. Charts cannot be placed into a Library if they are grouped with other objects.

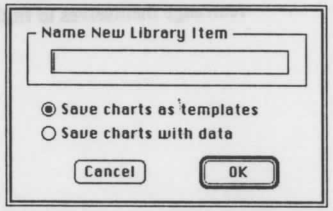
4. **Drag the selected item(s) until the crosshair cursor appears in the Library window.**

   The cursor automatically highlights templates in the Library. The new template is positioned into the Library directly before the highlighted template.



5. **Release the mouse.**

   The following dialog appears, with defaults set as shown. A highlighted button indicates the option is on.



6. **Enter the name you want to give this custom template.**
7. **Click on a selection button for one of the following options:**

   Save charts as templates Saves only the format as a template. It does not save the data.

   Save charts with data Saves all values associated with the chart. This option is helpful to use when you want to transfer the data to a new file. No matter what data is selected, all of the data on the page is saved.

8. **Click "OK" to name your new template and add it to the Library.**

   To return to the Chart window without adding the template to the Library, click "Cancel."

Using a Custom Template from an Open Library

If you drag a template from the Custom Library into an existing Chart Window, that Chart Window must be displayed. You can also create a new Chart window by choosing "Chart Windows" from the Windows menu and selecting "New" from the hierarchical menu before you begin these steps.

When a Custom Library is open, you can access templates within that Library two ways; drag a template into the Chart window from the open Custom Library, or if the template contains a chart, you can select the custom template from the "Plot" dialog. Charts contained within the Custom Library appear as a separate category of at the bottom of the dialog pop-up menu. The category has the same name as the Custom Library.

Note: Custom colors for Library templates created within a different DeltaGraph file cannot be transferred across files and appear with colors as defined by the file.

If your data contains more information than originally used when the custom template was created, you may need to apply font types and other formatting options to the extra data plotted.

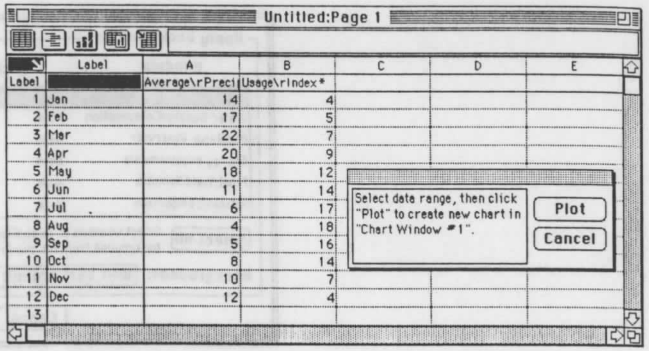
To use a custom template:

1. **Open the Custom Library of your choice.**
2. **Select a custom template from the Library and drag it into the Chart window.**

   If the custom template does not contain a chart, or if the chart within the template contains data, the objects are automatically displayed in the Chart window. You do not have to continue through the remainder of the steps.

   When a chart containing data is extracted, and the data used is not in the active file, a new page is created in the Notebook window to contain the new data.

   If a chart that was saved as a custom template with*out* data, DeltaGraph returns you to the last page used in the Notebook window. A "floating window" is displayed in the lower-left corner of the window telling you what you need to do and where the selected data will be plotted.



	Label	A	B	C	D	E
Label		Average\rPreci	Usage\rIndex*			
1	Jan	14	4			
2	Feb	17	5			
3	Mar	22	7			
4	Apr	20	9			
5	May	18	12			
6	Jun	11	14			
7	Jul	6	17			
8	Aug	4	18			
9	Sep	5	16			
10	Oct	8	14			
11	Nov	10	7			
12	Dec	12	4			
13						

Select date range, then click "Plot" to create new chart in "Chart Window #1".

You can drag the Title bar to move the floating window away from your viewing area.

Note: Many of the Notebook window features are active and available to you. You can enter or import new data, create a link to an Excel file, switch to another Data or Text page, or use the data functions to create new data.

3. **Select the data you want to plot.**

   To add to your current data selection, hold down the Command key (⌘) and select the additional data. To select a new range of data, de-select the current data by clicking in any cell and then select a new range of data. You can select by column, row, or individual cells.

4. **Click on the "Plot" button in the floating window**

   The Chart window is re-displayed, the selected data is applied to the custom template, and a chart is created. If the custom template contains more than one chart, any charts still requiring data are represented by a large box with an X in the middle. You can select the box and choose "Revise data" from the Data menu to add data to the chart.

5. **If you decide not to create a custom chart at this time click "Cancel" to return to the Chart Window.**

   Other objects contained in the template with the chart are displayed in the window regardless of whether the chart is plotted or not. You can plot the chart later as described in step 4.

Note: When a custom chart is still a box with an X in it, it can be moved but not resized.

To rename a custom template:

1. **Select the template you want to rename in the Custom Library.**

   A dark border appears around the template.

2. **Choose "Change Name..." from the Library contents pop-up menu.**

   The standard name dialog appears.

3. **Type the new name in the "Name Custom Chart" dialog.**

4. **Click "OK" to rename the custom template.**

   To exit the dialog without saving the changes, click "Cancel."

To delete a custom template:

1. **Select the template you want to remove from the Custom Library.**

   A dark border appears around the template.

2. **Choose "Remove Item" from the Library contents pop-up menu.**

   A dialog appears asking you to confirm your choice.

3. **Click "OK" to remove the custom template.**

   To exit the dialog without saving the changes, click "Cancel."

Using Background Templates

Backgrounds are separate Chart windows used especially for creating standard background templates for any or all of the charts you create. The difference between a custom template and a background is the purpose of each and the way they are applied. Backgrounds are used in back of all other objects in the Chart window. Instead of dragging the same background into each Chart window separately, as you would with a Library template, the "Backgrounds" command in the Windows menu allows you to apply any of the backgrounds you have created within the file, to any of the Chart windows.

Unlike custom templates in a Custom Library, backgrounds are unique to each file and therefore cannot be accessed by other DeltaGraph files. That's where the Custom Library comes in — you can use the Custom Library to store your backgrounds and to transfer the backgrounds into any file in DeltaGraph.

Backgrounds contain only one page. When applied to a Chart window consisting of more than one page, the same background is repeated for each page in the Chart window.

Creating a Background

To create a background:

1. **Choose "Backgrounds" from the Windows menu and select "New" from the hierarchical menu.**
   An empty Chart window is displayed. The name at the top of the window indicates that it is a background page.
2. **Create, paste, or import any graphics or text you want to be included in the background template.**

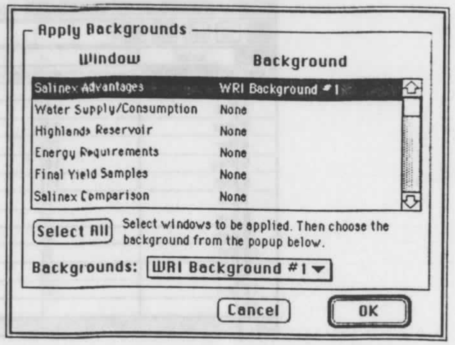
To name or rename a background:

1. **Choose "Backgrounds" from the Windows menu and select "Name..." from the hierarchical menu.**
   The "Chart Window Title" dialog appears with the default name selected.
2. **Enter a new name.**
   The new name overwrites the default name.
3. **Click "OK" to rename the background, or click "Cancel" to return to the window without renaming it.**
   If you click "OK," the new name replaces the old name in the Title bar of the window and in the list at the bottom of the Windows menu. The newly assigned name appears in the title bar.

To apply a background to a Chart window:

1. **Choose "Backgrounds" from the Windows menu and select "Apply..." from the hierarchical menu.**

   A variation of the following dialog appears. You can apply any background in the file to any of the Chart windows listed to the left of the dialog window. Use the scroll bars to display additional Chart windows. Under "Background" the name of the background applied to that Chart window is indicated.



Apply Backgrounds

Window	Background
Salinex Advantages	WRI Background #1
Water Supply/Consumption	None
Highlands Reservoir	None
Energy Requirements	None
Final Yield Samples	None
Salinex Comparison	None

Select windows to be applied. Then choose the background from the popup below.

Backgrounds: WRI Background #1

2. **Select the chart(s) you want to apply a background to.**
   Use Shift-click to select more than one chart or use "Select All" to select all of the Chart windows in the file.
3. **Select a background from the pop-up menu next to "Backgrounds."**
   This pop-up menu displays all backgrounds available within the file. The background name appears beside each Chart window indicating your choices.
4. **Click "OK" to implement the changes and return to the Chart window.**
   If you want to exit the dialog without applying the background, click "Cancel."

Editing Backgrounds

When you change a background, any Chart windows using that background are updated with the changes made.

Exporting Backgrounds

You can export a background by calling up the background window and choose "Export" from the File menu.

To export a Chart window and the background applied to it, you must activate an option in the "Preferences" dialog. Choose "Preferences..." from the Edit menu and click on the "Include background in pictures" option. If this option is not selected, everything is exported *except* the background — even if a background has been applied.

Deleting Backgrounds

You have two choices for deleting backgrounds; you can remove the active background, or you can delete a series of unneeded backgrounds. To delete the active background, make sure the background window is open and active. Choose "Background" from the Windows menu and select "Delete" from the hierarchical menu. After asking you to confirm your selection, DELTAGRAPH deletes the background and the window.

To select a series of background windows to delete, choose "Background" from the Windows menu and select "Delete Many..." from the hierarchical menu. A dialog is displayed listing all of backgrounds associated with the file. Click on the name(s) of the backgrounds you want to delete by using the Shift-click key combination. After asking you to confirm your selection, DELTAGRAPH deletes the selected window(s).

13 Creating a Slide Show

This chapter describes how to create professional slide presentations and audience handouts. It's as easy as specifying which Chart windows you want to use as slides; organizing them and applying optional visual and/or audio transitions to maximize impact; then running the slide show. Preparing handouts is just as simple — make selections in a dialog accessed through the "Page Setup…" command and print.

You can create an unlimited number of slide shows in each DELTAGRAPH file, but you can have only one slide show open at a time.

A slide can contain anything you can create within or import into a Chart window: DELTAGRAPH charts; graphics drawn with tools from the Toolbox; title slides created with the Text tool; and imported EPSF and PICT clip art or animated QuickTime movies.

Once you have all the charts and graphics you want to use as slides assembled into a single DELTAGRAPH file, select "Slide Show…" from the Windows menu to create and name your new slide show. When you're in the slide show mode, you will notice that the menu bar at the top of the screen changes. It now has only five menus, including the Slide menu, which contains all the commands you need to assemble, edit, and run your slide show.

This chapter covers:

- Creating, running, and controlling your slide shows
- Understanding the Slide Sorter window
- Creating, modifying, applying, and deleting slide transitions
- Naming and revising slides
- Adding, removing, and reordering slides
- Setting options for viewing a slide show
- Creating a stand-alone version of a slide show
- Memory-saving techniques
- Renaming and deleting slide shows
- Exporting slides
- Using QuickTime movies in a slide show
- Creating handouts for your presentation
- Printing from the Slide Sorter window

Creating or Opening a Slide Show

Because a slide show can only be made from Chart windows contained in the same file, it helps to have all the Chart windows you want to use as slides saved into a single DeltaGraph file before you begin. You can add slides at any time (see "Adding Slides" later in the chapter), but they too must be part of the file.

If the Chart windows you want to use in your presentation are scattered among different DeltaGraph files, you can use the Custom Library feature to transfer charts and other objects into one file.

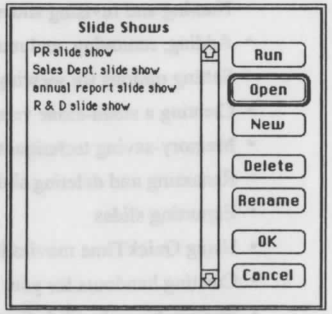
Once you create a slide show, it can be opened from the DeltaGraph file used to create it, or you can create a special stand-alone version that can be opened and run without the DeltaGraph application. (See "Creating a Stand-Alone Slide Show" later in this chapter to learn more about this feature.)

To learn more about	refer to
Using a Custom Library to transfer objects from file to file	"Placing a Custom Template into a Library" in Chapter 12

To create a new slide show:

1. **Assemble all the Chart windows you want to use as slides in the same DeltaGraph file.**
2. **Choose "Slide Show..." from the Windows menu, or press the Slide Sorter Window icon above the Chart window's vertical Scroll bar.**

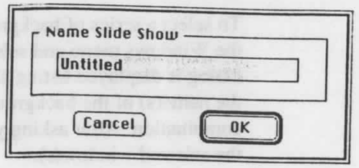
   The following dialog appears, displaying a list of any other slide shows associated with the current file. (If you already have a slide show open, pressing the icon takes you directly to the Slide Sorter window for that show.)



You can create a new slide show or run, open, delete, or rename an existing show from within this dialog.

3. **Click "New."**

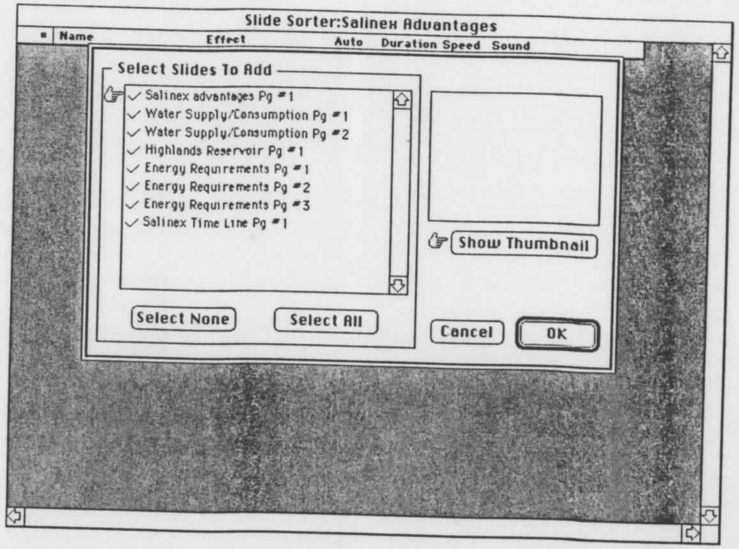
   The following dialog appears, with the default name "Untitled" selected in the entry box



4. **Name your slide show and click "OK."**

   The following dialog appears, displaying a list of all the Chart windows associated with the current file. Any Chart window consisting of more than one page has a separate listing for each page.

   You will notice that an empty Slide Sorter window (described in detail in the next section) opens simultaneously with the dialog and sits behind it until you exit the dialog.


Slide Sorter:Salinex Advantages
Name
Effect
Auto
Duration
Speed
Sound
Select Slides To Add
✓ Salinex advantages Pg #1
✓ Water Supply/Consumption Pg #1
✓ Water Supply/Consumption Pg #2
✓ Highlands Reservoir Pg #1
✓ Energy Requirements Pg #1
✓ Energy Requirements Pg #2
✓ Energy Requirements Pg #3
✓ Salinex Time Line Pg #1
Show Thumbnail
Select None
Select All
Cancel
OK

5. **Select the Chart windows you want to use as slides in this slide show.**

   All the Chart window pages listed are selected by default. If there are any you do not want to use as slides, click on them to de-select them. Click "Select None" to de-select everything in the list; click "Select All" to re-select everything. If no slides are selected, the "OK" button is dimmed; DeltaGraph does not allow you to create a slide show with no slides in it.

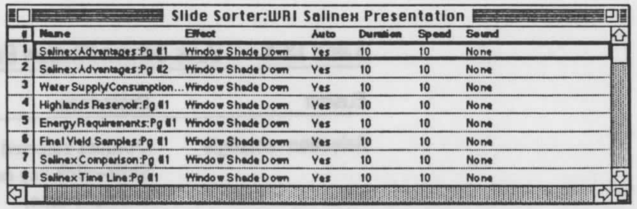
6. **If you want to see a reduced view of any slide, click to the left of its check mark to display the Pointing Finger icon and then click on the "Show Thumbnail" button.**

   A thumbnail version of the selected slide appears in the box just above the button.

7. **Click "OK" to add the slides to the current show and exit the dialog.**

   The Slide Sorter window remains displayed and is now the active window; it lists all the slides you added to your show.

   If you want to exit the dialog *and* the slide show mode without creating a slide show, click "Cancel."



Slide Sorter:WRI Salinex Presentation

#	Name	Effect	Auto	Duration	Speed	Sound
1	Salinex Advantages:Pg #1	Window Shade Down	Yes	10	10	None
2	Salinex Advantages:Pg #2	Window Shade Down	Yes	10	10	None
3	Water Supply/Consumption...	Window Shade Down	Yes	10	10	None
4	Highlands Reservoir:Pg #1	Window Shade Down	Yes	10	10	None
5	Energy Requirements:Pg #1	Window Shade Down	Yes	10	10	None
6	Final Yield Samples:Pg #1	Window Shade Down	Yes	10	10	None
7	Salinex Comparison:Pg #1	Window Shade Down	Yes	10	10	None
8	Salinex Time Line:Pg #1	Window Shade Down	Yes	10	10	None

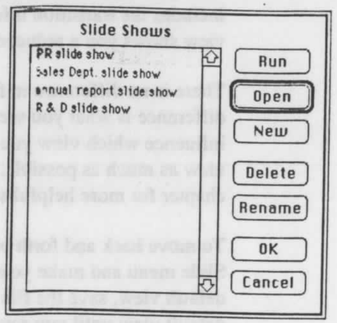
Now that your slide show is created, you can add, reorder, edit, or delete slides; set up options for displaying and controlling the slide show; create, modify, switch, or delete transitions (special effects you can assign to individual slides; see "Working with Slide Transitions" later in this chapter for more information); and prepare audience handouts to accompany the show.

To open an existing slide show:

1. **Choose "Slide Show..." from the Windows menu.**

   The following dialog appears, listing all the slide shows associated with the current file.

If you want to return to an open Slide Sorter window, press the Slide Sorter Window icon above the Chart window's vertical Scroll bar or choose "Slide Sorter" from the Windows menu.



Slide Shows

PR slide show
Sales Dept. slide show
annual report slide show
R & D slide show

2. **Double-click on the slide show you want to open, or select one and click "Open."**

   The Slide Sorter window opens, listing all the slides in the selected show.

Understanding the Slide Sorter Window

The Slide Sorter window has the standard Macintosh Zoom box, Title bar, Size box, and Scroll bars, all of which work in the usual way. The Title bar displays the name of the window, which is always "Slide Sorter," followed by a colon and the name of the slide show. You can move the window around the screen by clicking on the Title bar and dragging.

If you want to return to a Notebook or Chart window without exiting the slide show mode, select "Data Notebook" or the Chart window name from the Windows menu. When you are ready to return to the Slide Sorter window, select "Slide Sorter" from the Windows menu.

To close the Slide Sorter window and exit the slide show mode, click in the window's Close box, select "Close Window" from the File menu, or type ⌘-W. This returns you to the Notebook or Chart window active before you opened the slide show. If you want to return to the slide show mode, you must choose "Slide Show…" from the Windows menu and reopen the slide show.

Viewing Your Slides

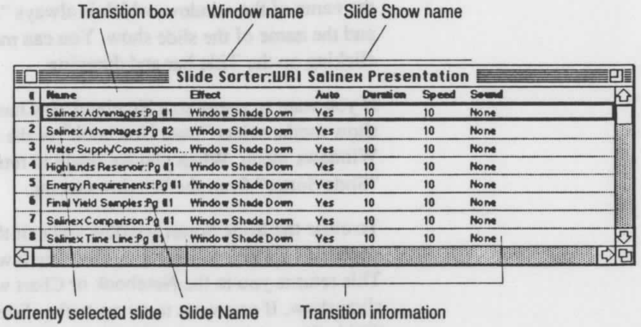
You can view the contents of a Slide Sorter window two different ways. "List" view (the default, unless you change it) lists the slides by name and number and includes the transition information for each slide (see Fig. 13-1); "Thumbnail" view shows you a reduced graphic view of each slide (see Fig. 13-2).

There is no difference in functionality between the two views; the only difference is what you see. Personal preference and/or the task at hand will influence which view you use. If you need to conserve memory, work in List view as much as possible. (See "Memory-Saving Techniques" later in this chapter for more helpful suggestions.)

To move back and forth between the two views, choose "Sorter View" from the Slide menu and make your selection from the hierarchical menu. To change the default view, save the file after switching views; DELTAGRAPH considers this the default view until you save the file again while it's in a different view.

If you want to change the text attributes for the "List" view information, choose "Slide Show Options..." from the Slide menu and click on "Set List Style" in the dialog that appears. This displays DELTAGRAPH's standard "Set All Text Characteristics" dialog.

To learn more about	refer to
The "Set All..." dialog	"Text menu" in Chapter 16



#	Name	Effect	Auto	Duration	Speed	Sound
1	Salinex Advantages:Pg #1	Window Shade Down	Yes	10	10	None
2	Salinex Advantages:Pg #2	Window Shade Down	Yes	10	10	None
3	Water Supply/Consumption...	Window Shade Down	Yes	10	10	None
4	Highlands Reservoir:Pg #1	Window Shade Down	Yes	10	10	None
5	Energy Requirements:Pg #1	Window Shade Down	Yes	10	10	None
6	Final Yield Samples:Pg #1	Window Shade Down	Yes	10	10	None
7	Salinex Comparison:Pg #1	Window Shade Down	Yes	10	10	None
8	Salinex Time Line:Pg #1	Window Shade Down	Yes	10	10	None

FIGURE 13-1. THE SLIDE SORTER WINDOW, LIST VIEW

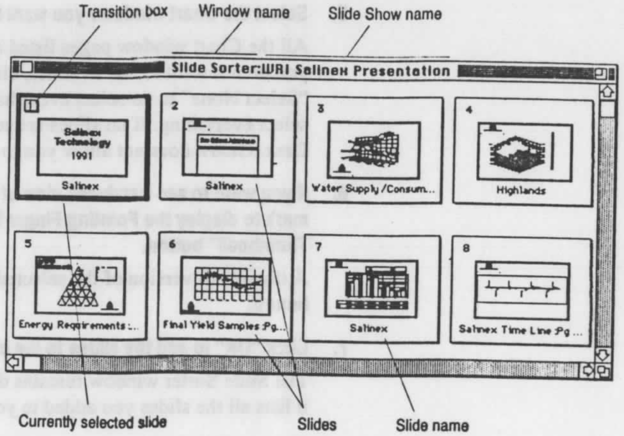


FIGURE 13-2. THE SLIDE SORTER WINDOW, THUMBNAIL VIEW

TABLE 13-1. SLIDE SORTER WINDOW ELEMENTS

ELEMENT	DESCRIPTION
Selection rectangle	Outlines selected slide(s) with a dark border. Use the Shift–click key combination to select more than one slide at a time.
Slide Names	DELTAGRAPH automatically assigns each slide the same name given to the originating Chart window. You can change the name of any slide by pressing the Option key while selecting the slide in the Slide Sorter window or choosing "Name Slide..." from the Slide menu, then typing a new name in the dialog that appears.
Slides	Graphic representations of the slides in the Thumbnail view.
Slide Show Name	This is the name you assigned when you created your slide show. You can use the "Slide Show..." command in the Windows menu to change the name. You cannot rename an open slide show — you must close it first.

TABLE 13-1. SLIDE SORTER WINDOW ELEMENTS CONTINUED

ELEMENT	DESCRIPTION
Transition box	Press to display a pop-up menu that lists all existing transitions below the "Edit Transitions…" option. Choose a transition from the list to apply to the selected slide(s), or choose "Edit Transitions…" to display a dialog so you can create a new transition to add to the list or modify or delete an existing transition.

To select slides in the Slide Sorter window:

1. **In List view: Be sure to click to the right of the slide's number.**

   In Thumbnail view: Click anywhere on the slide.

   To select more than one slide at a time, drag a selection rectangle around the slides (down the numbers in List view) or use the Shift–click method (hold down the Shift key while clicking on the slides).

   In the Thumbnail view (see Fig. 13-2), only the first slide selected displays the Transition icon. In both views (see Figs. 13-1 and 13-2), a selection rectangle surrounds the selected slide(s).

Note: Unless you specifically select one or more slides as described above, the first slide in the show or the slide(s) last acted upon is selected by default. If you do not intend to act upon the selected slide(s) directly, it doesn't matter what is selected.

Exiting from the Slide Sorter Window

You can return to the Notebook window or any Chart window without closing the Slide Sorter window. Either select "Data Notebook" or a Chart window name from the bottom of the Windows menu.

To close the Slide Sorter window, click in the close box in the upper left corner of the window.

Working with Slide Transitions

Slide transitions are special visual and audio effects you add to selected slides to control the segues between slides when running your show. You can control the timing, speed, and visual/audio effects with which slides change from one to another.

DELTAGRAPH is shipped with a default transition that is automatically applied to all new slides. You also have the option of creating your own transitions or not applying any transition at all.

If you name and save the transitions you create, you can use them again and again, applying them to slides in any slide show saved with the same file. When you modify a named transition, the changes are applied to all slides using that transition. You can apply a named transition to one or more selected slides, or you can create a named transition and just save it for later use.

The default transition can be modified in any way but it cannot be deleted. If you delete another named transition, the default transition is automatically applied to any slides using that transition.

When "Draw Direct To Screen" is selected in the "Slide Show Options" dialog (available in the Slide menu), the visual effects within a named transition do not work, but the timing and sound attributes still apply.

Note: Running a slide show uses a significant amount of memory, especially when you've applied transitions to your slides; "Creating a Slide Show with Limited Memory" later in this chapter offers several alternatives for conserving memory.

Before you can create, modify, or delete a slide transition, you must open the "Slide Transitions" dialog from an open Slide Sorter window. There are two ways to do this:

1. Press the Transition box and select "Edit Transitions..." from the pop-up menu, which also lists all existing transitions.

   In the List view (see Fig. 13-1), you can press anywhere within the box under the Title bar that contains the list headings ("Name," "Effect," etc.); in the Thumbnail view (see Fig. 13-2), the icon is in the upper left-hand corner of the first selected slide.

2. Choose "Transitions" from the Slide menu and select "Edit Transitions..." from the hierarchical menu, which also lists all existing transitions.

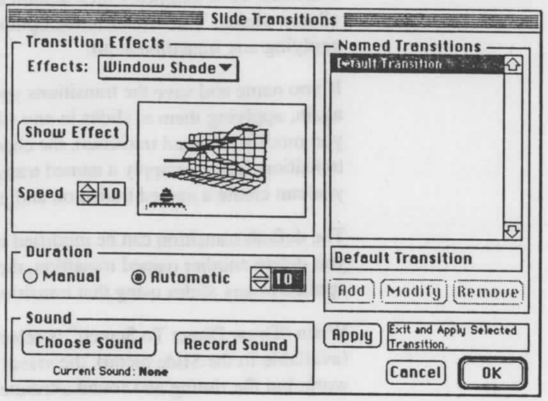
To create a transition:

1. **To apply your newly created transition immediately, select one or more slides from the Slide Sorter window.**

   If you do not intend to apply the new transition immediately, you can skip this step.

2. **Open the "Slide Transitions" dialog.**

   The following dialog appears, with defaults set as shown.



3. **Make your selections and enter data as needed.**

   You have the following options:

Transition Effects Determines the type of visual effect attached to the named transition and the speed with which it unfolds.

Effects Displays a pop-up menu of visual effects options, each of which displays a hierarchical menu of related options when selected. If you do not want a visual transition, choose "No Transition" from the top of the list.

To see how a selected effect works, click "Show Effect" and watch the demo box to the right. The options are:

Window Shade	Iris	Shutter
Slide	Blinds	Random Squares
Rain	Random Stripes	Corner

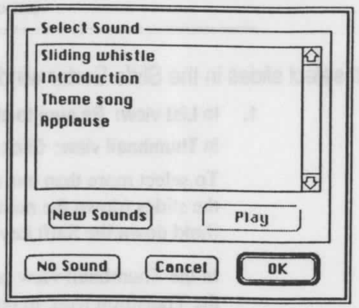
Speed Enter a number from 1–10 (ten is the fastest) or click the direction arrows to set the speed of the transition. (This is relative speed; actual speed varies depending on your computer.)

Duration Determines the length of time the slide(s) assigned the named transition will remain on screen.

"Manual" displays each slide until it is manually advanced.

To display each slide for a specified amount of time: select "Automatic," then enter the number of seconds in the entry box or click the direction arrows to scroll the options.

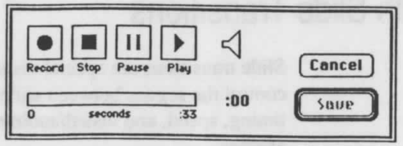
Sound Attaches an audio effect to the transition. "Choose Sound" opens the following dialog so you can open a file containing a pre-recorded "snd" resource.



Files containing "snd" resources can be found on online services or created with software that comes with sound digitizers. If you have not previously opened a file containing "snd" resources, click on the "New Sounds" button. A variation of the standard Macintosh "Open" dialog appears, listing the "snd" resource files you have on your disk. When you select a sound, you can click "Play" to preview the sound before clicking "OK" to apply it. The name of the sound you assign appears below the buttons.

To clear any sound previously applied to this transition, click on the "No Sound" button.

To record sound, you must have a Macintosh with a sound recording microphone or an externally connected sound digitizer. When you click on "Record Sound," the following dialog appears so you can monitor the recording.



4. **Enter a name for your transition in the entry box below the "Named Transitions" window.**

5. **Click "Add" to add this transition to the list of Named Transitions.**

   The name of the transition is also added to the list of transitions you see when you press the Transitions icon or choose "Transitions" from the Slide menu.

6. **Click "Apply" to apply the transition to the selected slide(s).**

7. **Click "OK" to save the changes and return to the Slide Sorter window.**

   If you want to exit the dialog without saving the new transition, click "Cancel."

To modify an existing transition:

1. **Open the "Slide Transitions" dialog.**

2. **Select the transition you want to change from the "Named Transitions" list.**

3. **Change the transition features as needed.**

   You can change any of the transition options, including the name of the transition itself.

4. **Click "Modify" to apply the changes to the selected transition.**

5. **Click "OK" to save the changes and return to the Slide Sorter window.**

   If you want to exit the dialog without saving the changes, click "Cancel."

To apply a different transition to a slide:

1. **Select one or more slides from the Slide Sorter window.**

2. **Press in the Transition box and select a new transition from the pop-up menu.**

   You can also open the "Slide Transitions" dialog and either create a new transition as described previously or select an existing transition from the list. You must then click "Apply" to apply the transition to the selected slide(s) and click "OK" to save the changes and return to the Slide Sorter window.

To delete a transition:

1. **Open the "Slide Transitions" dialog.**

2. **Select the transition you want to delete.**

3. **Click "Remove."**

The name of the transition is removed from the "Named Transitions" list in the dialog.

4. **Click "OK" to save the change and return to the Slide Sorter window.**

   This deletes the name of the transition from all transitions lists. Any slides previously assigned the deleted transition revert to the default transition.

   If you want to exit the dialog without deleting a transition, click "Cancel."

Naming a Slide

DELTAGRAPH assigns each new slide a default name consisting of the original Chart window name followed by a page designation. If you want to change the name of a slide, you can either choose "Name Slide..." from the Slide menu or press the Option key while clicking on the slide within the Slide Sorter window, then enter a new name in the dialog that appears.

Revising a Slide

If you want to make changes to the contents of a slide, you can either double-click on the slide in the Slide Sorter window or select the slide and choose "Edit Slide" (⌘–E) from the Slide menu. Both these methods return you to the originating Chart window so you can make your changes. The slide is automatically updated when you return to the slide show mode.

Note: If you make changes in a Chart window without having opened the window from the slide show mode, you must return to the Slide Sorter window and select "Rebuild Slides" from the Slide menu if you want to update the slide affected.

Changing a Slide Show

Adding Slides

To add one or more slides to your show, choose "Select Slides..." from the Slide menu. The "Select Slides to Add" dialog appears, displaying a list of all the pages in Chart windows associated with the file. Select the page(s) you want to add and click "OK." (By default, the pages that are not already a part of the current show have selection check marks next to them.)

Deleting Slides

To remove one or more slides from the slide show, select the slide(s) in the Slide Sorter window and press the Delete key.

Reordering Slides

DeltaGraph's advanced multiple-selection capabilities give you great flexibility when reordering slides. All you have to do is select the slide(s) you want to move and drag them to a new location.

You can even select slides in non-sequential order (using the standard Shift–click method) and have them reorder just as you selected them.

To reorder slides:

1. **Select the slide(s) you want to move.**

   When moving more than one slide, be sure to select them in the order you want them.

2. **Click on the first slide you selected and hold down the mouse button.**

   The cursor changes to the icon shown at the left.

3. **Drag the slide(s) to the new location within the Slide Sorter window, making sure that the first slide is directly over its new location before releasing the mouse button.**

   The slides rearrange themselves in the same order in which they were selected.

Running a Slide Show

Running a slide show is easy. If you're already in the Slide Sorter window, just choose "Run Show" from the Slide menu or type ⌘–R. If you want to start a slide show from a Chart or Notebook window, choose "Slide Show…" from the Windows menu, select one of the slide shows listed in the dialog that appears, and click "Run," the top button.

Before you begin, however, you should read the sections on the "Slide Show Options" dialog (see next section) and the "Slide Transitions" dialog (see "Working with Slide Transitions" earlier in the chapter). DeltaGraph gives you lots of control over the final product. If you take a few minutes to experiment with the different effects available, you'll see how easy it is to create a professional slide show.

When the slide show is running, you can use the special on-screen Control Panel, equivalent commands at the bottom of the Slide menu, or the Command key (⌘) shortcuts (see Table 13-2) to control the show.

Note: The slide show starts with whichever slide is selected in the Slide Sorter window. Be sure the first slide is selected if you want to start your show from the beginning.

Table 13-2. Slide Show Control Command Keys

Keys	Description
⌘–R	Runs the slide show.
⌘–N	Shows/hides the on-screen control panel while show is running.
⌘–G	Pauses/Continues the slide show.
⌘–. (period)	Stops the slide show.
⌘–F	Fast-forwards the slide show (hold keys down).
⌘–B	Rewinds the slide show (hold keys down).
⌘–=	Steps forward one slide in the slide show.
⌘–- (hyphen)	Steps backward one slide in the slide show.
⌘–J	Displays a dialog so you can specify the next slide displayed.

Setting Slide Show Options

Most of the options in the "Slide Show Options" dialog pertain to the actual running of the slide show. Selections you make about how the slides are drawn affect every slide in the show, not just selected slides.

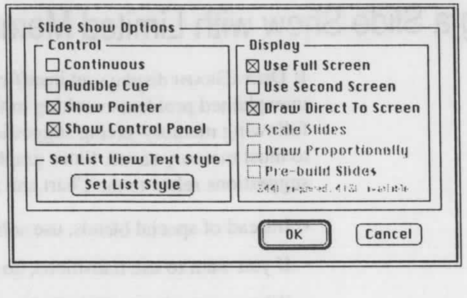
It is important to remember that "Draw Direct To Screen" must be selected if you want to take advantage of the "Slide Draw Delay…" command in the Draw menu or use QuickTime movies in your slide show. If you want to use transitions in your slide show, however, you must de-select "Draw Direct To Screen."

Selections made in this dialog affect the open slide show only.

To set slide show options:

1. **Choose "Slide Show Options..." from the Slide menu.**

   The following dialog appears, with defaults set as shown below. An X in a selection box indicates the option is on.



Slide Show Options

Control

☐ Continuous

☐ Audible Cue

☒ Show Pointer

☒ Show Control Panel

Display

☒ Use Full Screen

☐ Use Second Screen

☒ Draw Direct To Screen

☐ Scale Slides

☐ Draw Proportionally

☐ Pre-build Slides

2. **Make your selections as needed.**

You have the following options:

Control Sets control options for screening the slide show.

Continuous Runs the slide show in a continuous loop. Default is off.

Audible Cue Provides an audible signal when it's time to advance to the next slide. This is helpful when "Manual" is selected in the "Slide Transition" dialog. Default is off.

Show Pointer Determines whether or not the mouse pointer is visible when running the slide show. Default is on.

Show Control Panel Determines whether or not the slide show's Control Panel is visible on screen when the slide show is running. You can type ⌘–N while the show is running to override this selection. Default is on.

When the Control Panel is hidden, you can control the slide show by choosing commands from the Slide menu (if the menu bar is visible) or by typing the Command-key equivalents (see Table 13-2).

Display Determines how your slides are drawn and displayed during a slide show.

Use Full Screen Uses the entire viewing area of your monitor to display the slide show. Because the menu bar is hidden in this mode, you must use the on-screen Control Panel or the Command key (⌘) equivalents to control your slide show. If this option is de-selected, the slides are displayed in the Slide Sorter window. Default is on.

Use Second Screen Allows you to display your slide show on a second screen. The menu bar and the Control Panel remain on the original screen. Default is off.

Draw Direct To Screen Draws the slides directly to the screen when the slide show is running. The chart elements are drawn in the same order in which they were created in the Chart window. Default is off.

The slides are displayed the same size as they are in the Chart window, no matter what size the projection screen is. If you do not have "Use Full Screen" selected, you may have to enlarge the Slide Sorter window to accommodate the slides.

This is the most memory-efficient way to build and display your show because DELTAGRAPH doesn't have to pre-build and store all the slides before they are displayed.

Note: You cannot use the visual effects within a named transition when this option is selected. But if you want to use the "Slide Draw Delay…" command in the Draw menu or include imported QuickTime movies in a slide show, "Draw Direct To Screen" must be selected.

Scale Slides Scales the slides to the size of the destination screen. If your screen size is not compatible with the dimensions of your slides, use this option in conjunction with "Draw Proportionally" to reduce distortion of your slides. Default is off.

"Draw Direct To Screen" must be off to make this option available.

Draw Proportionally Scales the slides proportionally (and as large as possible) to the size of the destination screen. Default is off.

"Draw Direct To Screen" must be off to make this option available.

Pre-Build Slides Pre-builds the slides before the show is run so that the transition time between slides is shorter. This option takes up a lot of RAM/memory. A message at the bottom of the "Display" options list lets you know how much RAM/memory is needed and how much is available. Default is off.

"Draw Direct To Screen" must be off to make this option available.

Set List Style Displays the standard "Set All Text Characteristics" dialog so you can change the font, style, size, and color of text in the "List" view.

3. **Click "OK" to save the changes and return to the Slide Sorter window.**

If you want to exit the dialog without saving the changes, click "Cancel."

Creating a Stand-Alone Slide Show

DeltaGraph allows you to save a stand-alone version of any slide show. This creates a special application that allows you to run the slide show on any Macintosh whether DeltaGraph is installed or not.

You can run the show; change slide show options; modify and delete slide attributes such as transitions; print; and export from the stand-alone show. About the only thing you can't do is edit the Chart window associated with a given slide.

To create a stand-alone slide show:

1. **Be sure the file "Slide Stand-Alone Show" is installed on your hard disk as directed in the installation procedures.**
2. **Open the slide show you want to create the stand-alone version of.**

   The Slide Sorter window opens.
3. **Choose "Build Stand-Alone..." from the Slide menu.**

   A variation of the "Save As..." dialog appears. DeltaGraph assigns the stand-alone application the default name "DeltaGraph Slide Show."
4. **Choose your destination and type in a new name as desired.**
5. **Click "Save" or press Return.**

   The stand-alone version of the selected slide show is saved as directed.

   If you want to return to the Slide Sorter window without creating the stand-alone application, click "Cancel."

To run a stand-alone slide show:

DeltaGraph Slide Show

1. **Click on the application icon from the desktop.**

   By default, the slide show begins running immediately. When the show ends — or if you interrupt it mid-cycle (type ⌘-period, press "Stop" on the slide show's Control Panel, or choose "Stop" from the Slide menu) — you have full editing capabilities as described earlier in the chapter.

   If you want to edit the show before running it, hold down the Option key while launching the application.

Creating a Slide Show with Limited Memory

If DeltaGraph displays an insufficient memory dialog or you encounter unexplained problems working in the slide show mode, try some of the following memory-saving suggestions. The list builds from least memory saved to most memory saved. Since graphics are notorious memory hogs, most of the suggestions relate to the Chart and Slide Sorter windows.

- Instead of special blends, use solid fills.
- If you want to use transitions, do not use sound.
- When you're in the Slide Sorter window, use List view rather than Thumbnail view.
- Instead of using the "Scale Slides" or "Draw Proportionally" options from the "Slide Show Options" dialog, select "Draw Direct to Screen."

Adding "Draw Delay" to Slide Elements

If you are using the "Draw Direct to Screen" option, you cannot add transition effects to your slides. You can, however, use the "Slide Draw Delay..." command in the Draw menu to attach a pause, or "draw delay," to any object in the slide.

This option can be used merely to add a little visual drama to your slide show or to direct the viewers' attention to great effect — especially with QuickTime movies and certain slides. For example, by adding a draw delay to different objects in the slide, you can display each object one by one on the screen.

You may want to experiment with this option for displaying objects differently depending on the impact you're trying to present.

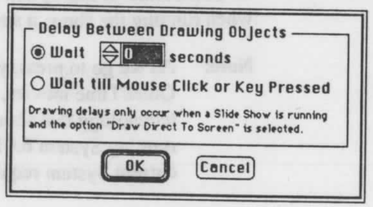
To add draw delay to a slide:

1. **Open the Chart window that contains the item(s) you want to delay.**
2. **Select all the objects you want to add the same amount of delay to.**

   For example, if you want to add a 15-second delay to the chart title and logo, and a 25-second delay to the chart, perform steps 2 through 5 for each of the time designations.

3. **Choose "Slide Draw Delay..." from the Draw menu.**

   The following dialog appears, with defaults set as shown below.


Delay Between Drawing Objects
● Wait 0 seconds
○ Wait till Mouse Click or Key Pressed
OK
Cancel

Drawing delays only occur when a Slide Show is running and the option "Draw Direct To Screen" is selected.

4. **Select one of the two draw delay options.**

   You can attach a time in seconds to the draw delay, or you can have DELTAGRAPH wait until you click the mouse or press a key before displaying the draw delay object. To override the specified number of seconds, click the mouse while the slide show is running.

5. **Click "OK" to save the selection and return to the Chart window.**

   Until you change this selection, whenever you run the slide show with "Draw Direct To Screen" selected in the "Slide Show Options" dialog, the selected objects and/or elements will delay as directed.

   Repeat steps 2–5 as many times as necessary.

   If you want to return to the Chart window without saving your draw delay selection, click "Cancel."

Renaming a Slide Show

If you want to change the name of a slide show, the Slide Sorter window for that show must be closed.

To rename a slide show:

1. **Be sure the slide show you want to rename is closed.**

   To close a Slide Sorter window, click in the window's Close box, select "Close Window" from the File menu, or press ⌘–W.

2. **Choose "Slide Show..." from the Windows menu.**

   The "Slide Shows" dialog appears, listing all the slide shows associated with the current file.

3. **Select the name of the slide show you want to change.**

4. **Click "Rename."**

5. **Enter the new name in the dialog that appears.**

6. **Click "OK" to change the name and return to the "Slide Shows" dialog.**

   The new name replaces the old name in the dialog listing. To change the names of additional slide shows, repeat steps 3–6.

   If you want to return to the "Slide Shows" dialog without changing the name of a slide show, click "Cancel."

7. **Click "OK" to save the name change and exit the "Slide Shows" dialog.**

   If you want to exit the dialog without saving the name change(s), click "Cancel."

Deleting a Slide Show

If you want to delete a slide show, the Slide Sorter window for that show must be closed.

To delete a slide show:

1. **Be sure the slide show you want to rename is closed.**

   To close a Slide Sorter window, click in the window's Close box, select "Close Window" from the File menu, or press ⌘–W.

2. **Choose "Slide Show..." from the Windows menu.**

   The "Slide Shows" dialog appears, listing all the slide shows associated with the current file.

3. **Select the name of the slide show you want to delete.**

4. **Click "Delete."**

   The name of the deleted show no longer appears in the dialog listing.

   To delete additional slide shows, repeat steps 3–4.

5. **Click "OK" to save the deletion and exit the dialog.**

   If you want to exit the dialog without deleting a slide show, click "Cancel."

Saving Your Slide Shows

A slide show is saved when you save the DeltaGraph file it was created in. To save a stand-alone slide show after you've modified it, choose "Save..." from the File menu or type ⌘–S.

Exporting Slides

Any DeltaGraph slide(s) can be exported from the Slide Sorter window into Adobe Illustrator, EPSF, PICT, or Scrapbook formats so they can be used in other applications and read by your slide bureau.

You can export an unlimited number of slides at one time into any single file format. Slides exported in Adobe Illustrator, EPSF, and PICT formats are automatically placed into separate files when you save them. Slides exported in the Scrapbook format are saved into the same file but arrive as separate objects when imported into another application.

To export DeltaGraph slides:

1. **Select all the slides you want to export in one of the available formats.**
2. **Choose "Export" from the File menu and select a format type from the hierarchical menu.**

   If you are unsure of which format to select, check with your service bureau or the documentation of the importing application.

   A variation of the standard Macintosh "Save As…" dialog appears after you make your selection.
3. **Type in a name and specify where you want the file(s) saved.**

   All selected slides are saved in the specified format. Each slide saved in EPSF, PICT, or Adobe Illustrator format is a separate file with its name followed by a 1, 2, 3, etc.; a period; and an abbreviation of the file format type. All slides saved in Scrapbook format are saved in the same file, with the file name followed by a period and the file type.

Using QuickTime Movies in Your Slide Shows

Animated QuickTime movies can be imported into open Chart windows and used in your slide shows. Select "Import" from the File menu, choose "Movie" from the hierarchical menu that appears, and select the movie you want to import.

Each QuickTime movie you import creates a separate file that must accompany the slide show whenever you run it. "Draw Direct to Screen" in the "Slide Show Options..." dialog must be selected to take advantage of the animation features of QuickTime. If this option is not selected, or you do not have the movie file when running the show, a single frame from the movie is displayed instead.

Note: As we go to press, you need a color system to be able to use QuickTime movies, but Apple plans revisions to the QuickTime technology that should make it available to any Macintosh system running System 6.07 or higher; check with your Apple dealer for current System requirements.

To learn more about	refer to
Importing QuickTime movies	"Importing Graphics" in Chapter 11

Creating Handouts for Your Slide Shows

Because audience handouts can be an effective way to reinforce the important points of a presentation, DeltaGraph makes it easy to prepare printouts of your slides. A special dialog accessed through the "Page Setup…" command gives you 10 layout options and several choices for printing the show title, slide names and numbers, and page numbers.

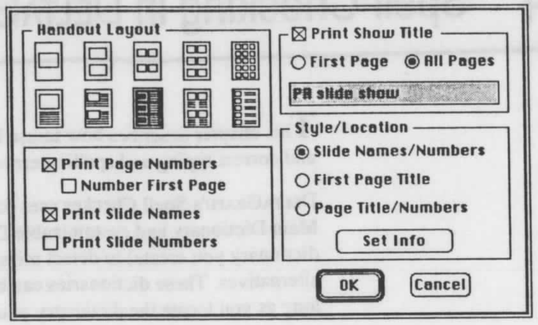
This feature is designed to print all the slides in the open show. If you want to print just one or several of the slides in your show: choose one of the one-slide-to-a-page layouts (or one of the multiple-slide layouts if the slides you want to print are in consecutive order), figure out what page(s) your slide(s) would correspond to, and print only those pages.

To create slide show handouts:

1. **Open the Slide Sorter window.**
2. **Choose "Page Setup..." from the File menu.**

   A "Page Setup" dialog appears.
3. **Click the "Handout Setup..." button in the lower-left corner of the dialog.**

   The following dialog appears, with defaults set as shown below. The title of your slide show appears selected in the entry box under "Print Show Title." An X in a selection box or a highlighted button indicates the option is on.



Handout Layout

☒ Print Show Title

○ First Page ● All Pages

PR slide show

☒ Print Page Numbers

☐ Number First Page

☒ Print Slide Names

☐ Print Slide Numbers

Style/Location

● Slide Names/Numbers

○ First Page Title

○ Page Title/Numbers

4. **Make your selections as needed.**

Handout Layout Displays all the formats available for arranging the slides on the page. Some formats contain blank lines that can be used for notes.

Print Show Title Determines whether the slide show name (as it appears in the entry box) appears on the first page or all pages of the handouts. You can type a new title in the entry box if desired. If you do not want the show title printed on *any* of the handout pages, de-select this option. Default is on.

Print Page Numbers Prints page numbers on each handout page. This option does not number the first page. Default is on.

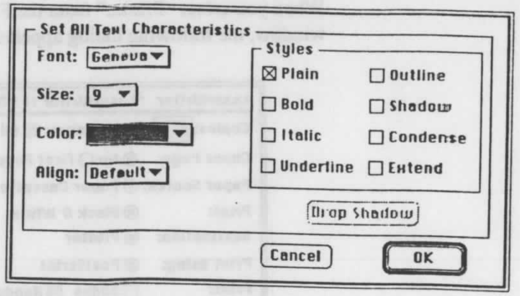
Number First Page Prints the page number on the first page. "Print Page Numbers" must be selected for this option to be available. Default is off.

Print Slide Names Prints the slide name with each slide in the handouts. Default is on.

Print Slide Numbers Prints the slide numbers with each slide in the handout. Default is off.

Style/Location Lets you specify different text attributes for "Slide Names/Numbers," "First Page Title," and "Page Title/Numbers."

To set the text attributes, click on the selection button next to the option you want to format and then press "Set Info." The following dialog appears:



Set All Text Characteristics

Font: Geneva

Size: 9

Color:

Align: Default

Styles

☒ Plain ☐ Outline

☐ Bold ☐ Shadow

☐ Italic ☐ Condense

☐ Underline ☐ Extend

Make your selections as you would in any DELTAGRAPH "Set All Text Characteristics" dialog. The defaults are as follows:

Slide Names/Numbers 9-point Helvetica, plain black, aligned center bottom.

First Page Title 18-point Helvetica, plain black, aligned center top.

Page Title/Numbers 12-point Helvetica, plain black, aligned center bottom.

Use the pop-up menu that appears when you press "Align" to align page and slide titles and numbers left, right, or center. You can place page information at the top or bottom of the page and slide information above or below each slide (select "Top" or "Bottom").

Click "OK" to save your formatting selections and return to the "Handout" dialog. If you want to change text attributes for another option, click the appropriate selection button and press "Set Info."

5. **Click "OK" to save your selections and return to the Slide Sorter window.**

If you want to exit the dialog without setting up handouts, click "Cancel."

6. **When you're ready to print your handouts, choose "Print..." from the File menu while you're in the Slide Sorter window.**

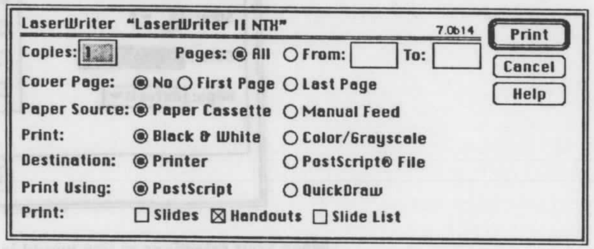
A variation of the Macintosh "Print" dialog appears (see next section).

7. **Make your selections and enter data as needed, making sure "Handouts" is selected at the bottom of the dialog.**

If you want to exit the dialog without printing, click "Cancel."

Printing from the Slide Sorter Window

When you select "Print..." from the File menu while you're in the Slide Sorter window, the following dialog appears:



LaserWriter "LaserWriter II NTX" 7.0b14
Copies: 1 Pages: ● All ○ From: To:
Cover Page: ● No ○ First Page ○ Last Page
Paper Source: ● Paper Cassette ○ Manual Feed
Print: ● Black & White ○ Color/Grayscale
Destination: ● Printer ○ PostScript® File
Print Using: ● PostScript ○ QuickDraw
Print: ☐ Slides ☒ Handouts ☐ Slide List

The dialog is the same as the one displayed in the Chart window, with several additional options at the bottom of the dialog:

Slides Prints all slides in the active window, regardless of what is selected.

Handouts Prints handouts for the open slide show in the format chosen from within the "Page Setup" dialog.

Slide List Prints a List-view version of the Slide Sorter window.

To learn more about	refer to
Printing in DELTAGRAPH	Chapter 15, "Printing from the Chart Window"

14 Spell-Checking in DELTAGRAPH

This chapter describes how to use DELTAGRAPH's online Spell Checker to catch and correct typing and spelling errors in any DELTAGRAPH window.

DELTAGRAPH's Spell Checker uses the program's 117,000-word DELTAGRAPH Main Dictionary and customizable DELTAGRAPH User Dictionary (or any user dictionary you create) to detect misspelled words and suggest possible alternatives. These dictionaries can be stored anywhere on your hard disk as long as you locate the dictionary you want the first time you use it.

This chapter covers:

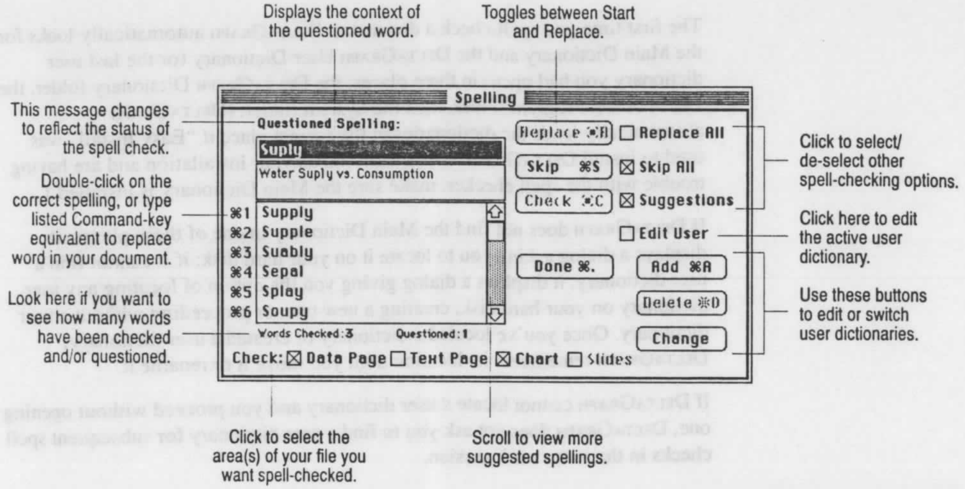
- Finding and replacing misspelled words within any window in DELTAGRAPH
- Setting spell-check preference options
- Adding words to and deleting words from a user dictionary
- Switching user dictionaries and creating new ones

Using DELTAGRAPH's Spell Checker

If you've used other spell checkers, you should have no trouble getting started with this one. Just be sure you've installed the DELTAGRAPH Main Dictionary. You may also find it helpful to read the sections on setting preference options (steps 2 and 3 of "To spell-check a file") and working with user dictionaries.

When you choose "Check Spelling..." from the Edit menu, the "Spelling" dialog appears (see Fig. 14-1). Before you start the check, you can specify several preference options located here, including which area(s) of the current file you want DELTAGRAPH to check — Data pages, Text pages, Chart windows, an open Slide Sorter window, or any combination of the four.

You can also add to or edit a user dictionary, change user dictionaries, create a new user dictionary, or simply type in a word you want checked — before spell-checking your file, or without checking your file.



Questioned Spelling: Suply

Water Suply vs. Consumption

⌘1 Supply
⌘2 Supple
⌘3 Suably
⌘4 Sepal
⌘5 Splay
⌘6 Soupy

Words Checked: 3 Questioned: 1

☐ Replace All
☒ Skip All
☒ Suggestions
☐ Edit User

Check: ☒ Data Page ☐ Text Page ☒ Chart ☐ Slides

Displays the context of the questioned word.

Toggles between Start and Replace.

This message changes to reflect the status of the spell check.

Double-click on the correct spelling, or type listed Command-key equivalent to replace word in your document.

Look here if you want to see how many words have been checked and/or questioned.

Click to select/ de-select other spell-checking options.

Click here to edit the active user dictionary.

Use these buttons to edit or switch user dictionaries.

Click to select the area(s) of your file you want spell-checked.

Scroll to view more suggested spellings.

FIGURE 14-1. DELTAGRAPH'S "SPELLING" DIALOG

Once you click "Start," DELTAGRAPH immediately begins checking your file for typos and misspellings. When it questions a word, you have the option of replacing it, adding it to the active user dictionary, or proceeding without taking any action ("Skip"). You can stop a spell check at any time by pressing "Done" or typing ⌘–. (period).

Spell-Checking a File

You can access the Spell Checker from any DELTAGRAPH window.

To spell-check your file:

1. **Choose "Check Spelling..." from the Edit menu.**

   The "Spelling" dialog appears, with defaults set as shown in Figure 14-1 (unless you changed the defaults during a previous spell check). An X in a selection box indicates an option is on.

2. **Click in the selection boxes to select/de-select spell-checking options as needed.**

   Your selections are saved as defaults until you change them. You can have DELTAGRAPH spell-check any or all of the following areas of the current file:

Data Page Checks for spelling errors in all Data pages associated with the current file.

Text Page Checks for spelling errors in all Text pages associated with the current file.

Chart Checks for spelling errors in all Chart windows associated with the current file.

Slide Checks for spelling errors in the Slide Sorter window. The current file must have a Slide Sorter window open for this option to be available.

You can select the following options for handling misspelled words:

Skip All Skips all subsequent instances of a questioned word after you tell DELTAGRAPH to skip it the first time. "Skip All" is the program default unless you de-select it.

Suggestions Suggests possible alternate spellings for each word questioned. "Suggestions" is the program default unless you de-select it.

Replace All Replaces all subsequent instances of a questioned word with the same alternate spelling you replaced it with the first time. "Replace All" is the program default unless you de-select it.

3. **Click Start, type ⌘–R, or press Return.**

   DELTAGRAPH begins scanning your file for misspellings. If no errors are found DELTAGRAPH signals that it is finished and automatically returns you to your file.

4. **If DELTAGRAPH finds a word not in the main dictionary or the open user dictionary, it questions it and — if "Suggestions" is checked in the dialog — suggests alternate spellings.**

   You now have the following choices:

Skip ⌘–S. Ignores the word and continues the spell check. You can also press Return.

Replace ⌘–R. Replaces the misspelled word with a selected word from the suggestion list or an alternate you've typed into the "Questioned Spelling" entry box. You can also replace a word by double-clicking on one of the suggested spellings or typing the Command-key equivalent next to it. Replaced words are not changed in the DELTAGRAPH file until you click "Done" to exit the spell checker.

Add ⌘–A. Adds the questioned word (or any word you type into the "Questioned Spelling" entry box) to the open user dictionary. (If you want to add the word to a different user dictionary, see "To switch user dictionaries" later in this chapter.)

When DeltaGraph has scanned all available windows, it displays the message "Finished Checking" above the entry box.

5. **Click "Done" or type ⌘–. (period).**

   If you have corrected any misspelled words on Data or Text pages, a dialog appears asking if you want to update related charts.

6. **Click "OK" to update all related charts and return to your file.**

   If you want to exit the dialog without changing the chart(s), click "Cancel."

To check the spelling of a word not in your file:

1. **If you are not already in the "Spelling" dialog, choose "Check Spelling..." from the Edit menu.**

   The "Spelling" dialog (see Fig. 14-1) appears.

2. **Type the word you want to check in the entry box at the top of the dialog.**
3. **Click on "Check," type ⌘–C, or press Return.**

   DeltaGraph flashes the "Spelling Correct" message or suggests alternate spellings if it questions a word.

4. **Click "Done" or type ⌘–. (period) to return to your file.**

Creating and Working with User Dictionaries

User dictionaries are supplementary dictionaries that contain words not listed in the main DeltaGraph Dictionary. When DeltaGraph spell-checks a document, it automatically scans the DeltaGraph Main Dictionary and the open user dictionary.

DeltaGraph comes with a user dictionary already set up (DeltaGraph User Dictionary). You can add words to this user dictionary or create your own. Words added to a user dictionary can be people's names, company names, abbreviations, special products — anything you want DeltaGraph to recognize and not question unless it's misspelled. You can create as many user dictionaries as you like; only one can be open at a time, however,

The first time you spell-check a document, DeltaGraph automatically looks for the Main Dictionary and the DeltaGraph User Dictionary (or the last user dictionary you had open) in three places: the DeltaGraph Dictionary folder, the DeltaGraph Program folder, then the System folder. (DeltaGraph automatically loads the dictionaries in the correct place if "Easy Install" was used to install DeltaGraph. If you customized your installation and are having trouble with the spell checker, make sure the Main Dictionary is installed.)

If DeltaGraph does not find the Main Dictionary in one of these places, it displays a dialog asking you to locate it on your hard disk; if it cannot find a user dictionary, it displays a dialog giving you the option of locating any user dictionary on your hard disk, creating a new one, or proceeding without a user dictionary. Once you've located a dictionary or created a user dictionary, DeltaGraph remembers its location until you move it or rename it.

If DeltaGraph cannot locate a user dictionary and you proceed without opening one, DeltaGraph does not ask you to find a user dictionary for subsequent spell checks in the same work session.

Editing a User Dictionary

If all you want to do is add a word DeltaGraph questions to the active user dictionary, click "Add" or type ⌘–A while the word is in the "Questioned Spelling" entry box, then proceed with the spell check or click "Done."

If you want to type new words into or delete old words from the active user dictionary, see "To edit the active user dictionary" below; if you want to switch user dictionaries or add a new one, see "Creating and Switching User Dictionaries" later in this chapter.

To edit the active user dictionary:

1. **If you are not already in the "Spelling" dialog, choose "Check Spelling..." from the Edit menu.**

   The "Spelling" dialog (see Fig. 14-1) appears.

2. **Click in the selection box next to "Edit User."**

   The message above the input entry box changes to "Word to Add to Dictionary," and the contents of the user dictionary is listed in the space below the entry box. Use the Scroll bar if you need to see words that are not visible.

   You can now execute the following commands:

   Add Adds a word to the dictionary. Type a word in the entry box, then click "Add," type ⌘–A, or press Return.

If you want to add another word, double-click on the previous entry (if it's not already selected), type in another word, then click "Add," type ⌘–A, or press Return.

Delete Removes a word from the dictionary. Click on a word in the list to select it, then click "Delete," type ⌘–D, or type the Command-key equivalent next to the selected word.

3. **Click "Done" or type ⌘–. (period) to return to your file.**

Note: If you commonly misspell certain words (i.e., *thier* for *their*), you can enter the misspelling and the correction in a user dictionary as a "spelling pair" with a semicolon between the words (*thier;their*). This tells DELTAGRAPH to automatically replace all occurrences of the first spelling with the second. Spelling pairs are added automatically to the open user dictionary if "Replace All" is selected.

Creating and Switching User Dictionaries

You may find it useful to create different user dictionaries for different projects — industry-specific acronyms and product names for a trade publication you produce; perhaps; or employee and client names for company reports.

You can create as many user dictionaries as your disk space allows, but you can have only one open at a time.

To create a new user dictionary:

1. **If you are not already in the "Spelling" dialog, choose "Check Spelling..." from the Edit menu.**

   The "Spelling" dialog (see Fig. 14-1) appears.

2. **Click "Change."**

   A variation of the standard Macintosh "Open" dialog appears, prompting you to locate a user dictionary or create a new one.

3. **Click "New."**

   Another dialog appears, prompting you to name and save your new user dictionary.

4. **Type in a name and select a location for the new dictionary.**

5. **Click "Save."**

DELTAGRAPH saves the dictionary as directed and returns you to the "Spelling" dialog so you can start adding words as described in step 2 of "To edit the active user dictionary."

Until you move, rename, or choose another user dictionary, DELTAGRAPH considers this the active user dictionary.

6. **Click "Done" or type ⌘–. (period) to return to your document.**

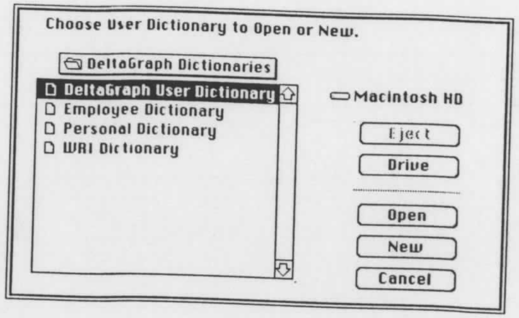
To switch user dictionaries:

1. **If you are not already in the "Spelling" dialog, choose "Check Spelling..." from the Edit menu.**

   The "Spelling" dialog (see Fig. 14-1) appears.

2. **Click "Change."**

   A variation of the Standard Macintosh "Open" dialog appears, prompting you to locate a user dictionary or create a new one.



3. **Find the user dictionary you want to open and double-click on it, or click on it once and press "Open."**

   If you want to exit the dialog without changing dictionaries, click "Cancel."

   DELTAGRAPH returns you to the "Spelling" dialog where you can edit the newly selected user dictionary or start a spell check.

4. **Click "Done" or type ⌘–. (period) to return to your document.**

   DELTAGRAPH now automatically opens the selected user dictionary until you move it, rename it, or choose another one.

15 Printing from the Chart Window

DELTAGRAPH supports both PostScript ad QuickDraw printing so you can send your files to a wide range of output devices. PostScript devices include some film recorders and any black-and white or color laser printer that supports PostScript, including the Apple LaserWriter family. QuickDraw devices include: the Apple ImageWriters and all dot-matrix printers; any non-PostScript laser printer; ink-jet, thermal wax, and color QuickDraw printers; plotters; and most film recorders.

You can even print a DELTAGRAPH file directly to disk. This gives you a PostScript file you can send to a service bureau for printing to a Linotronic or other high-resolution imagesetter.

If you want to print the data associated with a given chart, make sure the appropriate Data or Text page is displayed, specify page setup as described in "Understanding Page Setup" in this chapter, then choose "Print..." from the File menu.

DELTAGRAPH provides the highest resolution possible to both PostScript and QuickDraw printers.

This chapter covers:

- Printing to a PostScript device
- Printing to a QuickDraw device
- Setting custom page sizes
- Printing options unique to DELTAGRAPH
- Printing to disk
- Printing in color
- Printing to plotters or film recorders
- Printing Troubleshooting

To learn more about	refer to
Printing a Data page	"Printing a Data Page" in Chapter 4
Printing a Text page	"Printing a Text Page" in Chapter 5
Printing files to disk	"Using the 'Print...' Command" in this chapter

Using PostScript vs. QuickDraw

DeltaGraph uses the highest quality and features available for both QuickDraw and Postscript devices.

QuickDraw is the original page description language used by the Macintosh, it provides compatible output to the Macintosh screen and to output devices. Because it has a relatively low resolution of 72 to 300 dots per inch (dpi), it is not used by higher resolution output devices.

Adobe Systems' PostScript language is an alternative way of providing output to printers; it generates a much higher resolution of at least 300 dpi. (The Linotronic and other high-resolution imagesetters generate a resolution of 1,000–2,540 dpi.)

DeltaGraph exploits the advantages of the PostScript language by creating its Draw and Chart objects as true PostScript objects. This not only gives you cleaner, crisper output, it gives you more precise control over graphic elements. For example, you can set the pen weight of lines in fractions of points, specify special effects such as true perspective labels and projected ticks in 3-D charts, and enjoy smooth grayscale patterns and graduated fills.

Printing with PostScript

The most common black-and-white PostScript printers for the Macintosh are the Apple LaserWriters, various other makers of PostScript laser printers, and Imagesetters such as Linotronic. There are also various color PostScript printers.

Although DeltaGraph supports versions 5.2 or later of the Apple LaserWriter drivers, version 6.0 or later is recommended because of its support for converting color to grayscale patterns and the use of color PostScript printers. You also need PostScript and TrueType fonts to print PostScript. DeltaGraph does not support font substitution. TrueType versions of Monaco, New Your, and Geneva print in PostScript.

If you are using a PostScript output device make sure you choose "PostScript" from the "Print" dialog. You can also choose PostScript as a default by selecting "Print in PostScript" from within the "Preferences" dialog.

When using a PostScript device, keep in mind that percentages of gray shades print much faster than Macintosh patterns.

DeltaGraph generates complete PostScript output for all features except imported PICT images.

Printing with QuickDraw

ImageWriter printers, dot-matrix printers, plotters, many color printers, and most slide makers use QuickDraw routines in their device drivers.

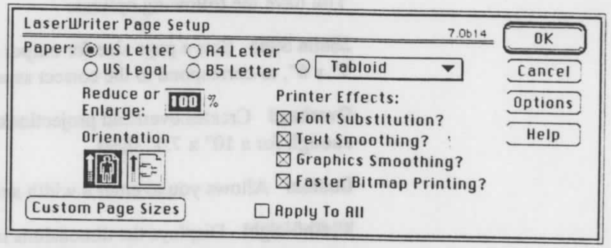
When printing to a QuickDraw printer, DeltaGraph automatically sets the printer to print at the highest resolution available by the device. The "Maximum Print Resolution" option in the "Preferences" dialog sets DeltaGraph for the higher resolution feature (default is on). With this feature on, some "Print" dialog options may be disabled, such as percent reduction and expansions, or other printer dependent options.

To get the maximum text clarity, especially for rotated or perspective text, TrueType or Adobe Type Manager with Type 1 fonts are recommended.

You will not be able to output to a QuickDraw device if you have selected a PostScript device in the "Print" dialog.

Understanding Page Setup

The following "Page Setup" dialog appears when you print to an Apple LaserWriter Plus with LaserWriter driver version 6.0 or later. Many PostScript printers show a dialog with similar options. Consult the manual for your printer, plotter, or film recorder for information about the standard options that appear in your "Page Setup" dialog. "Custom Page Sizes" within the "Page Setup" displays a dialog unique to DeltaGraph.



Paper: ● US Letter ○ A4 Letter ○ US Legal ○ B5 Letter ○ Tabloid

Reduce or Enlarge: 100 %

Printer Effects:
☒ Font Substitution?
☒ Text Smoothing?
☒ Graphics Smoothing?
☒ Faster Bitmap Printing?

☐ Apply To All

Setting Custom Page Sizes

DeltaGraph adds a special "Custom Page Sizes" button and accompanying dialog to all "Page Setup" dialogs. This allows you to set on-screen page breaks showing the proper image size or aspect ratio for slides, overhead projections, transparencies, and other non-standard page sizes.

It is important to remember that changing the Custom Size *does not* change the actual paper size of your output device. That must be changed in the main "Page Setup" dialog.

Also, be sure your printer is supplied with paper large enough to accommodate the page size you choose.

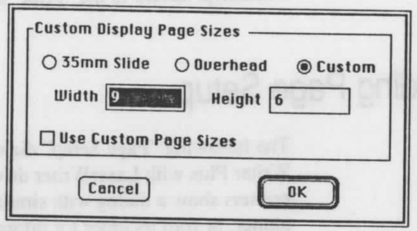
To set custom page sizes:

1. **Select "Page Setup" from the File menu.**

   A variation of the "Page Setup" dialog (shown earlier in this chapter) appears.

2. **Click on "Custom Page Sizes" in the dialog.**

   The "Custom Display Page Sizes" dialog appears with defaults set as shown below.



Custom Display Page Sizes

○ 35mm Slide ○ Overhead ● Custom

Width 9 Height 6

☐ Use Custom Page Sizes

3. **Make your selections and enter data as needed..**

   You have the following options:

   35mm Slide Sets a page size for output to slides. The printed output is 9" x 6", to correspond to the correct aspect ratio of a 35mm slide.

   Overhead Creates overhead projections. You must have a paper tray wide enough for a 10" x 7.5" sheet.

   Custom Allows you to enter a width and height of your choice.

   Width/Height Displays the dimensions of the selected page type: when you select "Custom," you must type the appropriate width/height in the corresponding entry boxes.

Note: If you set a custom size that is wider than it is high, set the orientation in the main "Page Setup" dialog to Landscape mode.

4. **Click in the "Use Custom Page Sizes" check box to put your selection into effect.**

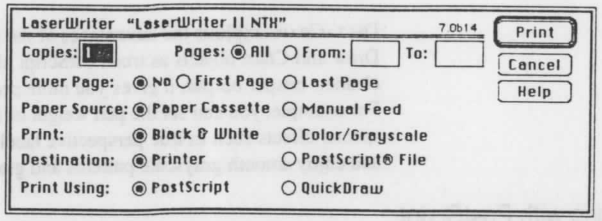
5. **Click "OK" to return to the "Page Setup" dialog.**

   If you want to return to the "Page Setup" dialog without setting a custom page size, click "Cancel."

6. **Change paper size selection and other options as needed in the "Page Setup" dialog.**

7. **Click "OK" to save changes and return to the Chart window.**

   If you want to return to the Chart window without saving your changes, click "Cancel."



LaserWriter "LaserWriter II NTX" 7.0b14

Copies: 1 Pages: ● All ○ From: To:

Cover Page: ● No ○ First Page ○ Last Page

Paper Source: ● Paper Cassette ○ Manual Feed

Print: ● Black & White ○ Color/Grayscale

Destination: ● Printer ○ PostScript® File

Print Using: ● PostScript ○ QuickDraw

Using the "Print..." Command

Consult the manual for your printer, plotter, or film recorder for information about the standard options that appear in your "Print" dialog. The options unique to DELTAGRAPH are explained in step 2 below.

To print a Chart Window:

1. **Choose "Print..." from the File menu or type ⌘–P.**

   A variation of the standard Macintosh "Print" dialog appears. Although the Dialog you see will depend on the operating system and type of printer you are using, defaults will be consistent with those shown below. A highlighted button indicates that an option is selected.

2. **Select data as appropriate to the dialog.**

   Refer to the printer manual for options specific to your printer. The following options are unique to DELTAGRAPH:

Print Determines how colors are printed. "Black & White" converts all colors to black output. "Color/Grayscale" converts colors in DELTAGRAPH to grayscale equivalents on a LaserWriter. These options are available only when using LaserWriter driver version 6.0 or later.

Destination Gives you the option of producing a PostScript disk file of the active Chart window. This is for output devices that do not print directly from an application but require a PostScript disk file to generate printed pages.

The System 7.0 print driver allows you to name and choose the location for storing the files. When you click on the "PostScript® File" radial button, the "Print" button changes to "Save." When you click on "Save" a dialog is displayed allowing you to select a name and location for saving the file.

With the System 6 print driver, the files are given the default names "PostScript0," "PostScript1," and so forth, and are saved in the main directory of the current start-up disk. (If you are using MultiFinder with Background Printing turned on, the files are saved in a "Spool Folder" inside your System folder.)

Print Using Lets you choose PostScript or QuickDraw, depending on the type of printer you are using. If you are not sure what type of printer you have, consult your printer manual.

You can print QuickDraw output to a PostScript printer if you need to test how the output appears on a QuickDraw device, but resolution may be lower. You cannot print PostScript to a QuickDraw device.

Printing in Color

DELTAGRAPH was designed to offer you full color capabilities. Here is an overview of how to get the best color output.

A QuickDraw color device converts the colors displayed on your monitor to the color matching system it uses. The accuracy of the matching depends on the device and the driver. In general, QuickDraw printers tend to print images darker than they appear on your monitor, but this may vary.

A PostScript color printer converts colors from the actual PostScript color commands assigned to each possible color. Because of variations between monitors and individual output devices, printed colors may still vary from what you see on screen; in general, however, a PostScript printer generates a more accurate color representation than a QuickDraw printer does. DELTAGRAPH generates PostScript using the CMYK color model. Custom colors created using the CMYK model are accurate to two decimal places when outputting to PostScript.

The background fill and pen colors of DELTAGRAPH objects are not supported by PostScript, except for objects filled with patterns where the background color appears, and in color blends where the background color is the second color in the blend. Any color PostScript printing shows the background color as white.

Using Plotters

To output to a plotter you must have an appropriate driver for your particular plotter. If the plotter manufacturer cannot supply you with a driver to use with the Macintosh, you can use a third-party driver, such as MacPlot^3 from MicroSpot™. Use the "Page Setup" and "Print" dialog options for the particular driver, making sure to set the PostScript or QuickDraw option according to your plotter type.

Using Film Recorders

Film recorders (or slide printers) use a wide variety of printing methods. Some use Chooser-level print drivers that print directly from the application, while many require Chart and Draw objects to be exported as PICT files, Encapsulated PostScript Files (EPSF), or PostScript disk files that are then imported into applications specifically designed to print to a film recorder.

For film recorders that do not print directly from the application, it may be helpful to set the "Custom Page Sizes" settings in the "Page Setup..." dialog to 35mm film. This shows page breaks that display the proper aspect ratio for your slide output.

Most slide output bureaus can create slides directly from PICT files. Some also support PostScript files. Determine your slide bureau's requirements before creating and sending off your files.

Troubleshooting

If you are having problems printing pages from DeltaGraph, the following tips may be helpful.

Is DeltaSymbol installed?

When printing a chart containing symbols (such as a Line, High/Low, Range, Step, Scatter, Paired Scatter, X-Y Line, Paired X-Y Line, 3-D Scatter, Ternary, Polar, or Bullet charts) DeltaSymbol must be installed properly.

Both PostScript and screen versions of DeltaSymbol must be installed even if you turn the symbols off. To install DeltaSymbol refer to "Installing DeltaSymbol" in Chapter 1.

Are you getting a PostScript error?

Is DeltaSymbol installed?

You may also encounter a PostScript error if you rotate the labels on your chart 0%. Choose a different rotation value in order to print your chart.

Does the chart you are printing contain more than 32,000 PostScript elements?

DeltaGraph does not support output of more than 32,000 elements.

Is the correct printer type chosen in the "Print" dialog?

You cannot print PostScript to a QuickDraw device. You can print QuickDraw output to a PostScript printer if you need to test how the output appears on a QuickDraw device, but resolution will be low.

If you are not sure what type of printer you have, consult your printer manual.

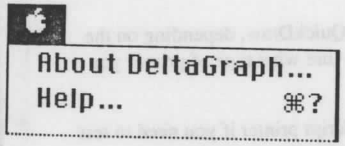
Note: If you are using spool software, you may need to increase RAM when printing 3-D charts.

16 DeltaGraph Menus and Commands

This chapter describes each DeltaGraph menu, command, and dialog, in the same order in which it appears under the Menu bar. The special Slide menu, which contains the commands you need to create and run a DeltaGraph slide show, is visible only when the Slide Sorter window is open; it is the last menu described.

For your convenience, window icons and Command key (⌘) equivalents with the corresponding command names appear in the margins throughout this chapter. See Appendix B for an alphabetical listing of all the Command key shortcuts available in DeltaGraph.

Apple Menu



Displays the "About DeltaGraph..." box

Displays dialog so you can learn more about DeltaGraph menus, concepts, commands, and dialogs

About DeltaGraph...

Displays information about the application and its authors. Click anywhere in the About box to display the author information; click again to close the message.

Help... ⌘-?

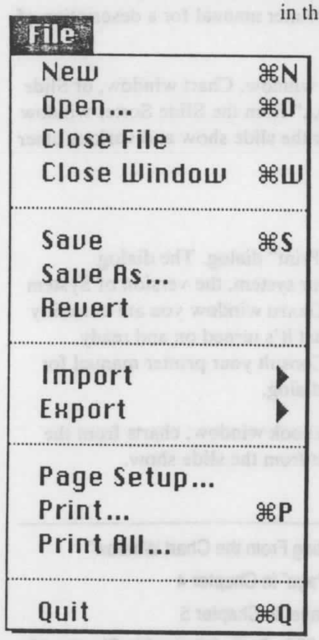
Displays the initial DeltaGraph "Help" dialog. You can also use the Help key on an extended keyboard to display the "Help" dialog. From the dialog you can choose any topic listed, such as a command or dialog name, and display increasingly detailed information about that topic.

To access context-sensitive help, hold down the Command key (⌘) while making a selection from a menu (even if the command is dimmed) or clicking on an icon or dialog option.

To learn more about	refer to
This command	"Getting Help" in Chapter 2

File menu

Use the File menu to import and export data files into the Notebook window and graphics into the Chart window. It is also used to set up and print Notebook windows, Chart windows, slide show handouts, and slides. All of the commands in the File menu are available from anywhere within DELTAGRAPH.



Creates a new file

Displays a dialog so you can open any DELTAGRAPH file

Closes the current file without quitting DELTAGRAPH

Closes the active chart window

Saves the current file

Displays "Save As..." dialog so you can rename the current file or save it to another location

Reverts to the last saved version of the current file

Displays a hierarchical menu so you can choose a data or graphic format to import

Displays a hierarchical menu so you can choose a data or graphic format to export

Displays a dialog so you can choose page options

Displays a dialog so you can specify printing options

Displays a dialog so you can print all of the existing Chart windows

Quits DELTAGRAPH and returns you to the Finder

New ⌘-N

Creates a new file. Because you can have only one DELTAGRAPH file open at a time, this command is available only when no DELTAGRAPH file is open.

Open... ⌘-O

Displays the standard Macintosh dialog for opening a file. Scroll through the dialog window and select the file you want, then press Return, click "Open," or double-click on the file name. The selected file opens displaying the initial Data page.

Because you can have only one DELTAGRAPH file open at a time, this command is available only when no DELTAGRAPH file is open.

Close File

Closes the current file without quitting DELTAGRAPH. If you have made changes and not saved your file, a dialog appears asking if you want to save the changes. You have three choices:

Yes Saves the file, or displays the "Save As" dialog so you can name an untitled document

No Closes the file without saving the most recent changes

Cancel Returns you to your DELTAGRAPH document

Close Window

⌘-W

Closes the active Chart or Notebook window. If the active window is the Notebook window, this command closes the current file. If you have made changes and not saved your file, the dialog described in the "Close File" command appears.

Save ⌘-S

Saves the file named in the Title bar of the active Notebook window. If the file is unnamed, "Save" displays the "Save As" dialog.

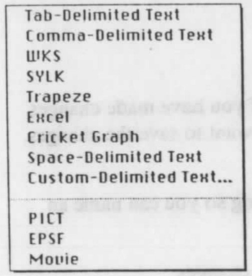
Save As...

Displays the standard Macintosh "Save As" dialog so you can rename the current file or save it to another location. Enter the name you want to give your file, be sure the correct drive and folder are selected, and click "Save." You can use up to 31 characters in the file name.

Revert

Returns to the last saved version of the file after asking you to confirm the selection. "Revert" cannot be undone.

Import



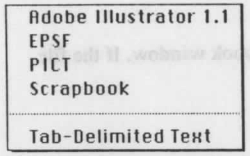
Displays a hierarchical menu listing the file formats you can import into DeltaGraph from other applications. When you select a format, the standard "Open" dialog appears so you can choose from the available files.

You can import data (in one of nine formats) into any open Data page. It is important to remember, however, that imported data overwrites the entire page, erasing all existing data. If the first row or column of the imported data contains any text, the data arrives beginning in the "Label" row and column; if the first column of the imported data is numerical, the data arrives beginning in Column A, Row 1.

You can import any PICT, EPSF, or QuickTime movie file into an active Chart window. The graphic appears in the upper left-hand corner of the window and now has all the properties of an Imported Graphic object. Imported QuickTime movies can be run from the slide show.

To learn more about	refer to
Importing data	"Importing Data" in Chapter 4
Importing graphics	"Importing Graphics" in Chapter 11

Export



Displays a hierarchical menu listing the formats you can save your DeltaGraph data, contents of an entire Chart window, selected objects from a Chart window, or slides from the Slide Sorter window for export to other applications.

When you choose a format, a variation of the standard Macintosh "Save As" dialog appears. Name your file, be sure the correct drive and folder are selected, then click "Save." The new file can now be opened by any application that reads the format it was saved in.

Data can be exported from any open Data page in tab-delimited text format (each field is separated by a tab); all data on the page is exported, regardless of what may be selected.

Object(s) within a Chart window or a slide within the Slide Sorter window can be exported as Adobe Illustrator 1.1, EPSF, or PICT files. Slides can also be exported as Scrapbook files. Multiple objects saved in one file are treated as a single graphic when opened by another application.

To learn more about	refer to
Exporting data	"Exporting Data" in Chapter 4
Exporting graphics	"Exporting Graphics" in Chapter 11

Page Setup...

Displays a version of the standard Macintosh "Page Setup..." dialog so you can specify page size and orientation, image reduction or enlargement, and other output related options. The dialog you see depends on the type of window activated, the printer attached to your system, and the version of System software installed on your Mac. Consult your printer manual for a description of Page Setup options.

This command is available from the Notebook window, Chart window, or Slide Sorter window. When you choose "Page Setup..." from the Slide Sorter window menu bar you can set up the handout format for the slide show and various other options for printing out slide show handouts.

Print... ⌘-P

Displays a version of the standard Macintosh "Print" dialog. The dialog displayed depends on the printer attached to your system, the version of System software installed on your Mac, and the DeltaGraph window you are currently in. Make sure your printer has paper in it and that it's turned on and ready. Select the options you want, then click "OK." Consult your printer manual for complete information about the options in this dialog.

You can print Data or Text pages from the Notebook window, charts from the Chart window, or slides, handouts, or a slide list from the slide show.

To learn more about	refer to
Printing your charts	Chapter 15, "Printing From the Chart Window"
Printing a Data page	"Printing a Data Page" in Chapter 4
Printing a Text page	"Printing a Text Page" in Chapter 5
Printing slides or handouts	"Printing from the Slide Sorter Window" in Chapter 13

Print All...

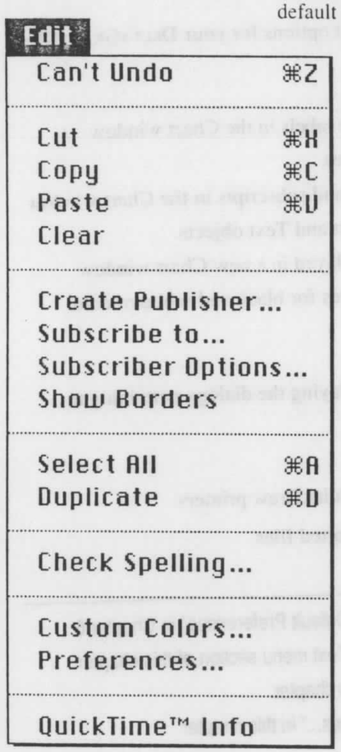
Displays a dialog so you can print out all Chart windows within the same file. The dialog displayed works the same as the as the "Print..." command. This option does not print out pages from the Notebook window.

Quit ⌘-Q

Exits DeltaGraph and returns you to the Finder (or possibly to another application if you are running MultiFinder or System 7.0). If you have made changes and not saved your document, a dialog appears asking if you want to save the changes. This dialog is described under the "Close File" command.

Edit Menu

Use the Edit menu to edit: text and data entries in the Notebook window, objects in the Chart window, and slides in the Slide Sorter window. It is also used to check the spelling from anywhere in DeltaGraph, create custom colors, and set default preferences for how DeltaGraph functions.



Command	Shortcut	Description
Can't Undo	⌘Z	Undoes the last operation; cannot undo "Revert"
Cut	⌘X	Removes selected data or object(s) from window and places in Clipboard
Copy	⌘C	Places a copy of selected data or object(s) in Clipboard
Paste	⌘V	Pastes contents of Clipboard in active window
Clear		Removes selected data or object(s) from the window without saving to Clipboard
Create Publisher...		Displays a dialog so you can publish selected data or objects in a Chart window
Subscribe to...		Displays a dialog so you can subscribe to graphics published in another application or file
Subscriber Options...		Displays a dialog so you can set options for subscribing to published editions
Show Borders		Hides or shows the border surrounding a block of subscribed data or graphics
Select All	⌘A	Selects all data in a Data page or all objects in a Chart window
Duplicate	⌘D	Makes a copy of selected object(s) and places near original in the Chart window
Check Spelling...		Displays a dialog so you can spell-check a DeltaGraph file
Custom Colors...		Displays a dialog so your can create custom colors accessible from any color palette
Preferences...		Displays a dialog so you can change program defaults
QuickTime™ Info		Displays a dialog so you can view the names of QuickTime movies located in the current file

Undo ⌘-Z

Undoes the last operation. The name of this command varies depending on the last action you performed. When you cannot undo an action, this command changes to "Can't Undo" and is dimmed. In a Notebook window, you can undo actions performed with the "Delete," "Cut," and "Paste" commands. You cannot undo the "Revert" command. In a Chart window, you can undo all changes to drawing objects, such as moving, resizing, and deleting. You can also undo all changes made with the Toolbox and from dialogs. From the Slide Sorter window you can undo "Clear" commands.

Cut ⌘-X

Deletes any selection from a Notebook or Chart window and holds it until you cut or copy something else. Charts cut and pasted become PICT, losing all linking to their Data or Text page.

Copy ⌘-C

Creates a copy of any selection and holds it in the Clipboard until you cut or copy something else.

Paste ⌘-V

Copies the contents of the Clipboard to the active window. In the Chart window you can paste objects between windows or files. Charts cut and pasted become PICT, losing all linking to their Data or Text page.

In the Data Page, data is pasted beginning with the currently selected cell and moving to the right and downward. Any data already there is replaced. In the Text page, you can paste data in an existing line or create a new data line.

In the Chart window, an object is pasted in the upper left-hand corner of the window. It can be moved anywhere within the Chart window when it is selected.

Clear

Removes the selected data or object(s) from the active window. It does *not* place a copy in the Clipboard.

Create Publisher...

Displays a dialog which allows you to publish selected objects within the Chart window to be used linked to other applications or files. This command will not appear in the menu unless System 7 is installed.

To learn more about	refer to
This command	"Publishing Graphics" in Chapter 11

Subscribe to...

Displays a dialog which allows you to subscribe to published editions of data and graphics. This command will not appear in the menu unless System 7 is installed.

To learn more about	refer to
This command	"Subscribing to Data" in Chapter 4 or "Subscribing to Graphics" in Chapter 11

Subscriber Options...

Displays a dialog allowing you to open the edition publisher, control updates to or cancel any published editions. This command will not appear in the menu unless System 7 is installed.

Show/Hide Borders

Toggles between “Hide Borders” and “Show Borders.” This option hides or shows the borders which appear around subscribed items. You can also change the size of the border to include or exclude objects in the published edition. This command will not appear in the menu unless System 7 is installed.

To learn more about	refer to
This command	“Subscribing to Published Editions ” in Chapters 4&11

Select All ⌘ - A

Selects all data in the current Data or Text page, all objects in the active Chart window or all of the slides in the Slide Sorter window. In the Data page, “Select All” selects all cells down to and including the lowest right-hand cell containing data. This is the same as clicking on the “Select All” icon in the upper left-hand cell of the Data page. Blank data cells which previously contained information are also selected with this option.

Duplicate ⌘ - D

Duplicates selected Draw, Text, and Imported Graphic objects in the Chart window, or duplicates selected slides in the Slide Sorter window. The copy is placed near the original and can be moved anywhere within the window when it is selected.

Check Spelling...

Displays a dialog so you can spell check an entire DeltaGraph file or any combination of windows. You can use the spell checker to check your spelling, suggest alternative spellings, and replace incorrect spellings. You also have the option to add to, or delete words from, the User Dictionary.

To learn more about	refer to
This command	“Using DeltaGraph's Spell-Checker” in Chapter 10

Custom Colors...

Displays a dialog so you can create up to 16 custom colors which can be used from any color palette within DeltaGraph. You can choose from four color models; RGB, CMY, CMYK, or HSL to create your colors.

To learn more about	refer to
This command	“Changing Attributes of a Draw. Text , or Chart Object” in Chapter 10

Preferences...

Displays a dialog so you can specify default options for your DeltaGraph files. You can set defaults for:

- arranging open windows on your screen
- setting defaults for displaying perspective labels in the Chart window
- adding PostScript instructions to PICT files
- automatically reducing the size of super- and subscripts in the Chart window
- setting the text characteristics within Chart and Text objects
- pre-determining the number of pages displayed in a new Chart window
- setting various pattern and color preferences for black and white or color monitors
- setting grid snap defaults
- activating the double-click option for displaying the dialogs pertaining to various parts of Chart objects
- setting defaults for printing in PostScript
- setting the maximum print resolution for QuickDraw printers
- include backgrounds in PICT or EPSF exported files

To learn more about	refer to
This command	“Setting Chart Default Preferences” in Chapter 6
Setting text characteristics	“Set All” in the Text menu section of this chapter
The “Windows” options	“Position” in this chapter
Setting the number of pages	“Number of Pages...” in this chapter

QuickTime Info™

Displays a dialog so you can view the names of any QuickTime movies located in the current DeltaGraph file. You can also click on the movie title to display the location of the movie. This command is active only if QuickTime is installed on your hard disk.

In some rare instances extra data files (such as sound or picture files) are attached to a movie. These files are not shown in the dialog. For additional information concerning QuickTime, refer to the QuickTime User's Guide.

Text Menu

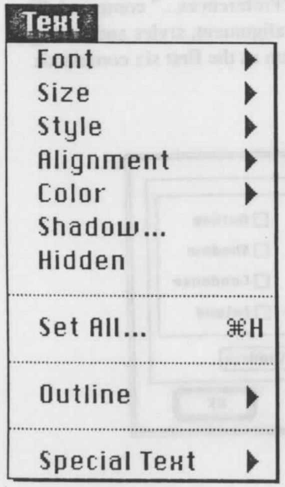
Use the Text menu to change text attributes in the Notebook and Chart windows. The default type style in the Data page is 10-point Geneva, plain black, the Text page is 12-point Geneva, plain black; the Chart window is 12-point Helvetica, plain black; the Slide Sorter window is 9-point Geneva, plain black.

Changing text attributes in the Notebook window affects all text on the page. You can use "Set All..." in the Notebook window or in the Chart window to change font, style, size, color, and alignment for selected text all at the same time

You can use "Preferences..." in the Edit menu to change the default text attributes for text objects and chart labels in the Chart window.

Not every command is available for every window or page. Check with the specific command described below.

To learn more about	refer to
Text in the Data page	"Formatting Text in a Data Page" in Chapter 4
Text in the Text page	"Formatting Text in a Text Page" in Chapter 5
Text in the Chart window	"Working with Text Objects in a Chart Window" in Chapter 10



Displays a hierarchical menu so you can choose a text font

Displays a hierarchical menu so you can choose a font size

Displays a hierarchical menu so you can choose a text style

Displays a hierarchical menu so you can choose text alignment

Displays a color palette so you can choose a text color

Displays a dialog so you can create a shadow image of selected text in the Chart window

Hides chart labels or entire text blocks in the Chart window

Displays a dialog so you can define any or all text attributes at one time

Displays a hierarchical menu so you can manipulate the hierarchy of text within a Text page

Displays a hierarchical menu so you can insert a page break or add super- and subscript commands to the Data page

Font

Displays a hierarchical menu showing the fonts currently installed in your Macintosh System file. Select a font from the list to change selected text or specify a font before typing. Changing a font in the Notebook window effects the whole page. In a Chart window it affects selected text within a Text object, the whole text object (if the object is selected but the ruler is not displayed), or selected text blocks within the Chart object.

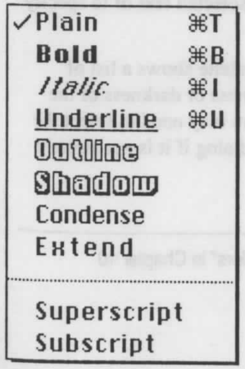
Size

Displays a hierarchical menu showing a selection of standard font sizes. Select a size from the list to change selected text or specify a size before typing. Changing a font size in the Notebook window affects the whole page. In a Chart window it affects selected text within a Text object, the whole text object (if the object is selected but the ruler is not displayed, or selected text blocks within the Chart object.

The sizes that appear in outline style are installed screen fonts. For proper on-screen representation of your fonts, you should only use sizes that are currently installed in your system.

To create a custom size, choose "Other..." from the bottom of the list. When the "Font Size" dialog appears, scroll through or enter a font size from 3 to 127 points.

Style



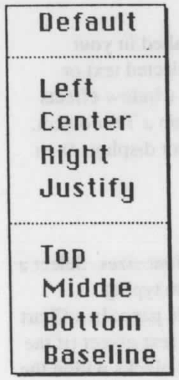
Displays a hierarchical menu showing a list of options for styling text. Select a style from the list to change selected text or specify a style before typing. The available styles and keyboard equivalents are shown on the left. Changing a font style in the Notebook window affects the whole page. In a Chart window it affects selected text within a Text object, the whole text object (if the object is selected but the ruler is not displayed), or selected text blocks within the Chart object.

With exception of "Plain," which negates all other styles, text styles can be applied to fonts in almost any combination. You can experiment to see the different effects.

Superscript and Subscript can be used in the Chart window. You must select individual characters to be super- or subscribed.

To learn more about	refer to
Using super- and subscripts in the Data page	"Formatting Text in a Data Page" in Chapter 4

Alignment

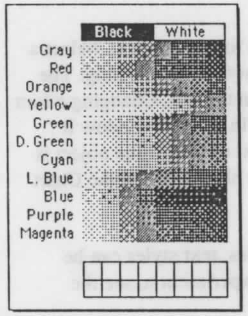


Displays a hierarchical menu showing a list of options for aligning selected text. Select the text, then choose the "Alignment" command and select the option you want.

Some alignment options are applicable only to particular types of text. The Top, Middle, Bottom, and Baseline options apply to text in Table charts only. Your alignment options are:

Default	In a Data page, numbers right, text left; In a Chart window, programs choice.
Left	Aligns selected text vertically against the left margin.
Center	Centers selected text within paragraph margins.
Right	Aligns selected text vertically against the right margin.
Justify	Spaces selected text within the left and right margins so that it aligns vertically with both.
Top	Aligns selected text at the top of a Table chart cell.
Middle	Aligns selected text in the middle of a Table chart cell.
Bottom	Aligns selected text at the bottom of a Table chart cell.
Baseline	Aligns selected text at the bottom using the text closest to the bottom as a guide (Table Charts only). This can be used to align different size text or font styles at the bottom.

Color



Displays a palette with 106 colors, including 16 custom colors, that you can apply to text. Select a color from the palette to change selected text or to specify color before typing.

If you are using a black-and-white monitor, the color palette shows a list of colors followed by patterns that show the relative lightness or darkness of the color as it will appear on a color monitor or printer. You may need to select the "Use patterns for colors" options in the "Preferences" dialog if it is not already selected.

To learn more about	refer to
Creating custom colors	"Working with Custom Colors" in Chapter 10

Shadow...

Displays a dialog so you can add a duplicate image behind each character of selected text in a Chart window. You can specify the offset and your color preference with the dialog. To remove the shadow, re-select the text, re-choose "Shadow..." and select "None" from the dialog.

Hidden

Hides chart labels or entire Text objects. For example, this is useful when you want to hide every other axis label or a Text object. The object remains in the Chart window even though it becomes invisible, and you can select the object again if you remember where it is!

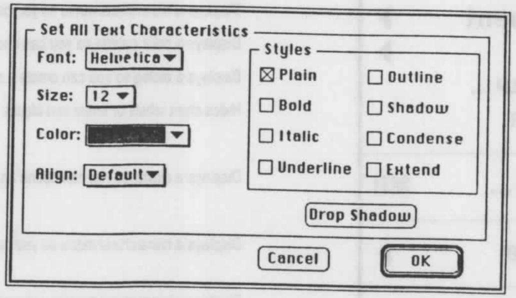
This command works only on entire blocks of text, not on individual characters.

Set All... ⌘-H

Displays a dialog so you can set any or all text attributes in a Notebook or Chart window at the same time.

In the Notebook window, "Set All..." affects all text within the window, regardless of what may be selected. You cannot change portions of text in a Text or Data page. In the Chart window, this command affects selected text only.

The dialog displayed below appears when "Set All..." is selected. This same dialog is also used to set the text attributes in the "Preferences..." command. The dialog has options for setting the font, size, color, alignment, styles and adding a shadow. These options have the exact same function as the first six commands in the Text menu.


Set All Text Characteristics

Font: Helvetica

Size: 12

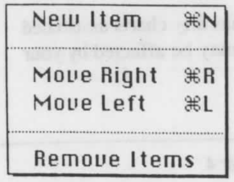
Color:

Align: Default

Styles

☒ Plain
☐ Bold
☐ Italic
☐ Underline
☐ Outline
☐ Shadow
☐ Condense
☐ Extend

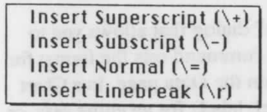
Outline



Displays a hierarchical menu so you can add, delete, and adjust the levels of subordinate entries in a Text page.

To learn more about	refer to
The Text page	"Text Page Elements," in Chapter 2
	Chapter 5, "Organizing Data in a Text Page"

Special Text



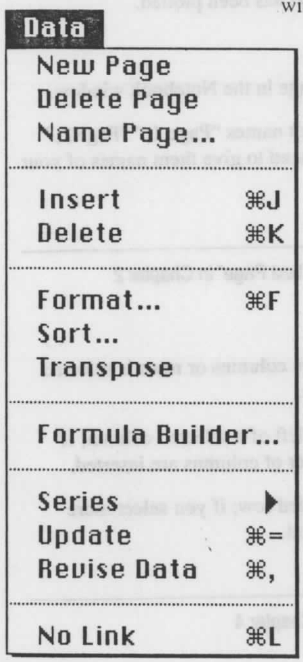
Displays a hierarchical menu so you can insert a command to create superscript and subscript characters in the Data page. "Insert Normal" must be used after a super- or subscript command to return the text style to normal.

Since you cannot create a new line in a Data page Data cell, the "Linebreak" command is used to create a new line. The final product appears in the Chart window when the data is plotted.

To learn more about	refer to
This command	"Formatting Text in a Data Page" in Chapter 2

Data Menu

Use the Data menu to perform operations on the data from within the Notebook and Chart windows. With the exception of "Revise Data" (which is done from the Chart window) and "Format..." (which is done from the Notebook or Chart window), most of the commands in this menu are performed in the Notebook window.



Data		
New Page		Creates a new page of the same type displayed
Delete Page		Deletes the current page
Name Page...		Displays a dialog so you can name the current page
Insert	⌘J	Inserts empty rows or columns in a Data page
Delete	⌘K	Deletes selected row(s) or column(s), from a Data page
Format...	⌘F	Displays a dialog so you can format selected numbers automatically
Sort...		Displays a dialog so you can sort selected data in ascending or descending order.
Transpose		Reverses the columns to rows and rows to columns
Formula Builder...		Displays a dialog so you can create and perform calculations on selected columns of data
Series	▶	Displays a hierarchical menu so you can plot a data series from columns or from rows
Update	⌘=	Updates related charts after you've changed data in the Notebook window
Revise Data	⌘,	Updates selected charts in the Chart window after you've changed data in the Notebook window
No Link	⌘L	Cycles through three commands so you can link and unlink Excel data with DELTAGRAPH charts.

New Page

Creates a new page within the Notebook window, displaying a Data page when accessed from another Data page and a Text page when accessed from another Text page. You can also press the Data Page icon or Text Page icon at the top of the Notebook window from either page, to create new Data or Text pages.

Though you can have only one page open at a time, the number of pages a file can contain is limited only by available memory.

To learn more about	refer to
Icons in the Notebook window	"Notebook Window Elements" in Chapter 2
Creating a new Data or Text page	"The Notebook Window" in Chapter 2

Delete Page

Removes the active page from the Notebook window. You cannot delete the only page in a file or any page from which a chart has been plotted.

Name Page...

Displays a dialog so you can name the current page in the Notebook window.

DELTAGRAPH automatically gives pages the default names "Page 1," "Page 2," "Page 3," and so forth, unless you use this command to give them names of your own choosing.

To learn more about	refer to
Naming a Data or Text page	"Naming a Data or Text Page" in Chapter 2

Insert ⌘-J

This command is available only when one or more columns or rows is selected in a Data page, and its name changes accordingly.

"Insert Columns" inserts an empty column to the left of a selected column; if you select more than one column, the same number of columns are inserted.

"Insert Rows" inserts an empty row above a selected row; if you select more than one row, the same number of rows are inserted.

To learn more about	refer to
Selecting row and columns	"Selecting Data" in Chapter 4

Delete ⌘-K

This command is available only when one or more columns or rows are selected in a Data page, and its name changes accordingly.

"Delete Columns" deletes all data from selected column(s); remaining data moves from the right into the empties column(s).

"Delete Rows" deletes all data from selected row(s); remaining data moves up into the emptied row(s).

If you try to delete rows or columns from a page that has any charts associated with it, a dialog appears warning you that the chart(s) may be affected by your deletion.

To learn more about	refer to
Selecting row and columns	"Selecting Data" in Chapter 4

Format... ⌘-F

Displays a dialog so you can automatically reformat selected data in a Data page or in a Chart window as times, dates, currency, percents, or scientific data.

The "Format..." command displays the "Set Format" dialog that allows you to specify formats for numbers, times, and dates. This command sets the format for a single cell, a row, or a column at a time from within the Data page. In a Chart window you can set the format for a single axis label, labels for an entire axis, or all axes of a selected chart.

To learn more about	refer to
This command	"Using the 'Format...' Command" in Chapter 4

Sort...

Displays a dialog so you can sort selected columns of alphabetical or numeric data in ascending or descending order. You can specify a secondary and tertiary sort within the main sort.

To learn more about	refer to
This command	"Sorting Data" in Chapter 4

Transpose

Physically transposes all data in the Data Page so that all columns are switched to rows and rows are switched to columns. This command works on all data on the page regardless of what is selected.

This command is similar to "Series" however this command physically transposes the data. Use "Series" if you plan to import or link data into the Data page.

To learn more about	refer to
This command	"Transposing Data Information" in Chapter 4

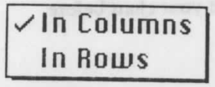
Formula Builder...

Displays a dialog that allows you to create and perform mathematical and statistical operations on selected columns of data. You can also generate columns of numbers, times, and dates within parameters you specify.

Note: To display the Formula Builder" dialog, you must first select a column as your destination column.

To learn more about	refer to
This command	"Using the 'Formula Builder...' Command" in Chapter 4

Series



Displays a hierarchical menu so you can choose whether to plot your data series from the current Data page, based on the rows or the columns (default setting).

When you choose "In Rows" from this menu, each data series is plotted from a row instead of from a column. It works the same as if you were using the "Transpose" command however, it doesn't physically change the location of the data on the page.

This command should be used if other charts have already been plotted using the same Data page, or if you plan to import or link the Data page.

To learn more about	refer to
This command	"Transposing Data Information" in Chapter 4

Update ⌘-=

Automatically updates *all* charts associated with a modified Data or Text page.

Use this command (or the Update icon), after modifying data in a Notebook window, to update all charts associated with the current page.

To learn more about	refer to
This command	"Updating Your Charts" in Chapter 6

Revise Data ⌘-,

Allows you to change only the selected chart from the Chart window without affecting other charts associated with the same Notebook window. You must select a chart in the Chart window before this command is available.

You can also click on the Revise icon on the right side of the Chart window to revise a selected chart.

To learn more about	refer to
This command	"Revising Chart Data" in Chapter 6

No Link/Link/ Unlink ⌘-L

"No Link" indicates that the current Data page has not been linked with an Excel file and that there is no data from Excel in the Clipboard.

This command changes to "Link" when you are in a Data page with no existing Excel link (you can create only one link per Data page) and there is data copied or pasted from Excel in the Clipboard.

Choose "Link" to paste the Excel data held in the Clipboard into the current Data page and to create an ongoing link with the originating Excel file. Until this link is broken, any changes made and saved in the Excel file are reflected automatically in the linked Data page.

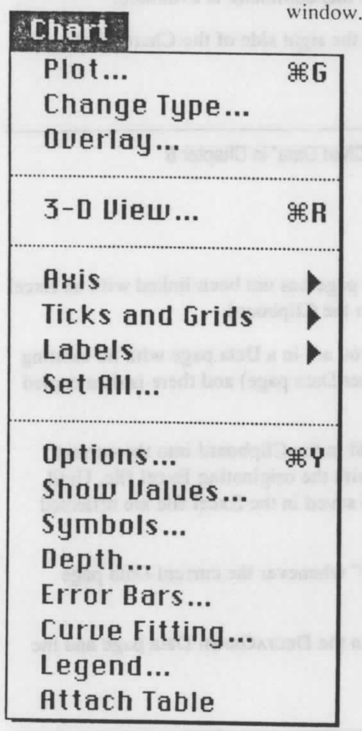
The "Link" command changes to "Unlink" whenever the current Data page contains a link to an Excel document.

Choose "Unlink" to break the link between the DELTAGRAPH Data page and the Excel file.

To learn more about	refer to
These commands	"Linking Excel Data" in Chapter 4

Chart Menu

Use the Chart menu to perform operations on chart objects within the Chart window. With the exception of "Plot," which is available from any Notebook window, these commands are available only when a chart is selected in a Chart window.



Command	Shortcut	Description
Plot...	⌘G	Displays a dialog so you can choose a chart type and destination, then plot selected data
Change Type...		Displays a dialog so you can change the chart type of the selected chart
Overlay...		Displays a dialog so you can create on overlay chart of the selected chart
3-D View...	⌘R	Displays a dialog so you can adjust the perspective on 3-D charts
Axis ▶		Displays a hierarchical menu so you can choose a chart axis, then adjust its parameters
Ticks and Grids ▶		Displays a hierarchical menu so you can choose a chart axis, then turn the grids on and off or adjusts the tick marks
Labels ▶		Displays a hierarchical menu so you can choose a chart axis, then reposition the axis labels and add axis titles
Set All...		Displays a dialog so you can change the three previous commands all at once
Options...	⌘Y	Displays a dialog of options for modifying the selected chart
Show Values...		Displays a dialog so you can place data values on the chart
Symbols...		Displays a dialog so you can choose symbol characters for charts that use data symbols
Depth...		Displays a dialog so you can add depth to a 2-D chart
Error Bars...		Displays a dialog so you can place error bars on a chart to show standard deviation and percentage of difference
Curve Fitting...		Displays a dialog so you can average the points on a line to show a more gradual curve
Legend...		Displays a dialog so you can remove or attach a legend to your chart
Attach Table		Attaches a Table chart to the selected chart

Plot... ⌘-G

Available from any Data or Text page. Displays a dialog so you can choose a chart type and destination window, then automatically plots the selected data in the active Notebook window. (This is the same dialog displayed as when you click on the "Plot" icon in the Notebook window.) You can choose from 38 chart types and plot the chart in a new Chart window or any one of the windows listed in the "Plot Options" pop-up menu.

If any Custom Libraries have been opened, templates containing charts will also appear in the "Plot" dialog pop-up menu. The name of the Library appears as a separate category in the "Plot" dialog pop-up menu and the Custom charts can be selected from the hierarchical menu.

Charts contained in the "Standard Library" appear mixed in with the various categories depending on the type of chart.

To learn more about	refer to
Plotting data and chart types	Chapter 6, "Plotting Data"
Custom Libraries	"Using the Custom Library" in Chapter 12

Change Type...

Displays a dialog so you can a selected chart to another type, without re-selecting the data. You cannot choose a different category of chart (3-D etc.) or a different Chart window from this dialog. You must select your chart before this command is available.

To learn more about	refer to
This command	"Changing the Chart Type" in Chapter 6

Overlay...

Displays a dialog so you can create an overlay of the selected chart using the same data.

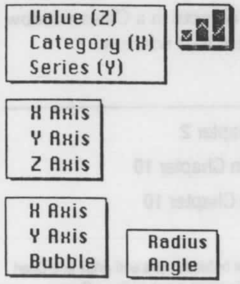
To learn more about	refer to
This command	"Combining Charts" in Chapter 6

3-D View... ⌘-R

Displays a dialog so you can change the orientation, perspective, and vanishing point on a 3-D chart. You must select your chart before this command is available.

To learn more about	refer to
This command	"Working with 3-D View" in Chapter 7

Axis

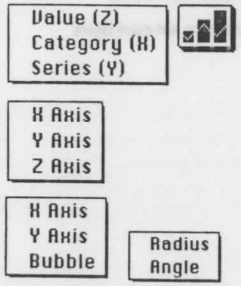


Displays a hierarchical menu from which you choose the axis you want to modify. This in turn displays a dialog so you can change the axis scale, placement, starting values, or other associated parameters. You must select your chart before this command is available.

Both 2-D and 3-D charts have three axes; they can be called the X, Y, and Z axes or the Value, Category, and Series axes. In a 2-D chart, the Z or Series axis is the legend.

To learn more about	refer to
This command	"Reformatting a Chart's Axes" in Chapter 7

Ticks & Grids



Displays a hierarchical menu from which you choose the axis you want to modify. This in turn displays a dialog so you can turn major and minor tick marks and grids on and off, change the tick mark length, and determine how the tick marks and grids will be displayed. 2-D charts have tick marks and grids on two axes. 3-D charts have tick marks and grids on three axes.

You must select your chart before this command is available.

To learn more about	refer to
This command	"Changing Tick Marks and Chart Grids" in Chapter 7

Labels

Displays a hierarchical menu from which you choose the axis you want to modify. This in turn displays a dialog so you can assign an axis title and change the orientation of the labels and title for that axis.

You can also set the "Double-click on charts" options in the "Preferences..." command so then you double-click on the axis labels the "Labels" dialog for that axis is displayed. You must select your chart before this command is available.

To learn more about	refer to
Changing axis labels or adding axis titles	"Creating and Positioning Axis Labels and Titles" in Chapter 7

Set All... ⌘-Y

Displays a dialog so you can change the "Axis," "Ticks and Grids," and "Labels" command all at one time. Click on the pop-up menu next to the option to display the dialog for that command.

Options... ⌘-Y

Displays a dialog so you can change features specific to the chart selected. The dialogs vary, depending on the chart type selected. You must select your chart before this command is available.

To learn more about	refer to
This command	Chapter 8 "Using the 'Options...' Command"

Show Values...

Displays a dialog so you can place different types of value labels on a 2-D chart in a variety of positions and locations. You must select your chart before this command is available.

To learn more about	refer to
This command	"Showing Values on a 2-D Chart" in Chapter 7

Symbols...

Displays a dialog so you can change the symbol for each data series in a chart that uses symbols. The default font is DELTAGRAPH's own DeltaSymbols; if you have not installed Delta Symbols, the default is Zapf Dingbats. You can choose a symbol character from any font installed in your System.

You must select your chart before this command is available.

To learn more about	refer to
Changing Symbols on a chart	"Changing Chart Symbols" in Chapter 7

Depth...

Displays a dialog so you can add depth to certain 2-D charts (Column, Stacked Column, Bar, Stacked Bar, Bubble, Area, Pie, Multiple Pie, Stacked Pie, and Table). You must select your chart before this command is available.

To learn more about	refer to
This command	"Adding Depth to a 2-D Chart" in Chapter 7

Error Bars...

Displays a dialog so you can add error bars to your data series in a Line, Step, Scatter, Paired Scatter, X-Y Line, or Paired X-Y Line chart. Error bar options include: Percentages, Standard Error, Standard Deviation, Fixed Values, and Variables based on data in the Data Page.

You must select your chart before this command is available.

To learn more about	refer to
This command	"Adding Error Bars to a Chart" in Chapter 9

Curve Fitting...

Displays a dialog so you can add mathematically generated curves to selected series in a Line, Step, Scatter, Paired Scatter, X-Y Line, or Paired X-Y Line chart. "Curve Fitting..." options include: Linear, Logarithmic, Exponential, Polynomial, Spline and user-defined curve fits.

You must select your chart before this command is available.

To learn more about	refer to
This command	"Using Curve Fits" in Chapter 9

Legend...

Displays a dialog so you can add or remove a legend from the selected chart. You can also select whether to display or remove the overlay chart legend.

Attach Table

Displays a Table chart directly below the selected chart. The Table chart uses data from the same Data page as used in the selected chart. Since many people interpret visuals differently, a Table chart can be used to help clarify the figures contained in your 2-D or 3-D chart.

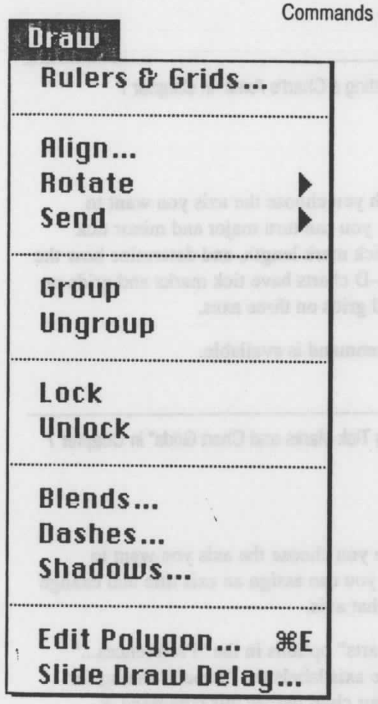
You can modify this chart as you would a standard Table chart, such as using the "Options..." command. Any revisions or updates to chart data is also reflected in the Table chart.

To learn more about	refer to
Table Charts	"Understanding the Types of Charts" in Chapter 6

Draw Menu

Use the Draw menu to perform operations on selected objects in a Chart window and to set up the rulers and invisible grid system on the Chart window.

To learn more about	refer to
The Toolbox	"About the Toolbox" in Chapter 2 "Looking at the Toolbox" in Chapter 10
Commands in the Draw menu	"Using the Draw Menu" in Chapter 10



Rulers & Grids...	Displays a dialog so you can set parameters for and show or hide rulers and grids in a Chart window, and set the unit of measurement for options within other areas of DeltaGraph
Align...	Displays a dialog so you can align selected objects
Rotate	Displays a hierarchical menu so you can rotate and flip selected Draw objects
Send	Displays a hierarchical menu so you can send selected objects up and down layers
Group	Groups selected objects into one unit
Ungroup	Separates a grouped object into its original components
Lock	Locks an object in place so you cannot modify or move it
Unlock	Unlocks a locked object
Blends...	Displays a dialog so you can create a special color or pattern blend
Dashes...	Displays a dialog so you can specify a line dash pattern
Shadows...	Displays a dialog so your can create a drop shadow for any object within a Chart window
Edit Polygon... ⌘E	Cycles through five commands, depending on selected object, so you can edit a polygon, arc, rounded rectangle, Bezier curve, or arrow
Slide Draw Delay...	Displays a dialog so you can define the draw time between chart elements for a particular Chart window when the slide show is running

Rulers & Grids...

Displays a dialog so you can modify the underlying rulers and grids in the active Chart window. You can:

- choose a unit of measurement that applies to rulers, grids, and other options within various dialogs (the default is inches)
- reset the size of the horizontal and/or vertical grids (the default is 0.25 inches; the minimum allowed is the equivalent of 0.1 inch, the maximum is the equivalent of 2 inches)
- turn rulers and/or grids on or off (the default is off; horizontal and vertical grids can be turned off and on separately)
- turn the "Snap to Grid" option off or on (the default is on)

  When the "Snap to Grid" is selected, all objects in the active Chart window align to the window's underlying grid (whether it's visible or not) when you create, resize, or move them. You can override this command temporarily by holding down the Option key while manipulating an object.

To learn more about	refer to
This command	"Changing Rulers and Grids in the Chart Window" in Chapter 10
Modifying grids in a chart	"Changing Tick Marks and Chart Grids" in Chapter 7
Rulers within a Text object	"Working with Text Objects in a Chart Window" in Chapter 10

Align...

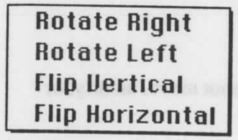
Displays a dialog so you can align selected objects along their edges (tops, left sides, right sides, or bottoms), their centers (vertically or horizontally), or to the drawing grid.

All objects are aligned by their object handles that define their boundaries.

Remember, to select multiple objects, you must press the Shift key while making your selections.

To learn more about	refer to
This command	"Aligning Objects" in Chapter 10
Aligning text in a Chart window	"Working with Text Objects in a Chart Window" in Chapter 10
Aligning text in a Data page	"Formatting Text in a Data Page" in Chapter 4
Aligning text in a Text page	"Formatting Text in a Text Page" in Chapter 5

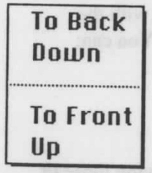
Rotate



Displays a hierarchical menu so you can rotate one or more selected Draw objects to the right or left in 90-degree increments, or flip a selected object 180° vertically or horizontally. This command rotates Text objects also but not the text within them.

To learn more about	refer to
This command	"Rotating Draw and Text Objects" in Chapter 10

Send



Displays a hierarchical menu so you can send one or more selected objects up and down through the layers in a Chart window:

To Back	Moves the selected element(s) to the bottom layer
Down	Moves the selected element(s) down one layer
To Front	Moves the selected element(s) to the top layer
Up	Moves the selected element(s) up one layer

Note: DELTAGRAPH remembers layers in the same order you created or placed each object. If it appears that an object is not moving, move it again; you might have drawn an object in another part of the chart that is inserting a layer between the objects you're trying to reposition.

To learn more about	refer to
This command	"Layering Objects" in Chapter 10

Group/Ungroup

"Group" combines selected objects into a single element so you can perform operations on them as a unit. This is useful if you want to move several objects and maintain their relative spacing, or if you want to make the same attribute changes to several objects. You cannot place a chart into a Library if it is grouped with other objects.

"Ungroup" returns a grouped object to its individual components.

To learn more about	refer to
This command	"Grouping and Ungrouping Objects" in Chapter 10

Lock/Unlock

"Lock" freezes one or more selected objects so you cannot move, modify, or delete them.

"Unlock" releases any locked object(s) so it can be manipulated in the usual ways.

Blends...

Displays a dialog so you can add a special blend to any selected Text, Draw or Chart object(s) and to many elements within a chart. Experiment with the different variations to see the remarkable effects you can create. You can:

- Choose from six different patterns
- Select start and end colors
- Determine the degree of graduation within a blend by specifying more or fewer steps (the default is 40)
- Change the focal point of the blend by clicking around in the example box, which displays the changes as you make them

To remove the blend, select "None" from the dialog.

To learn more about	refer to
This command	"Adding Special Blends to Objects" in Chapter 10

Dashes...

Displays a dialog so you can assign a dashed pattern to any selected Text, Draw or Chart object(s) and to many elements within a chart. You can choose from 16 dash patterns, change the scale, and round the ends of the line.

To learn more about	refer to
This command	"Creating Dashed Lines" in Chapter 10

Shadows...

Displays a dialog so you can add a drop shadow to any selected Text, Draw or Chart object(s). You can specify the offset and color or pattern preferences within the dialog.

To remove a shadow, select "None" from the dialog.

To learn more about	refer to
This command	"Adding Drop Shadows to Objects" in Chapter 10

Edit Polygon...

⌘-E

Allows you to change the segments points of a polygon. You must select a polygon to make this command available.

Note that the name of this command changes depending on the Draw object selected. The keyboard shortcut remains the same.

To learn more about	refer to
"Edit" commands	"Creating and Editing Draw Objects" in Chapter 10

Edit Bezier Curve...

⌘-E

Allows you to change the curvature of segments in a Bezier curve or Freehand object. You must select a Bezier curve or Freehand object to make this command available.

Note that the name of this command changes depending on the Draw object selected. The keyboard shortcut remains the same.

Edit Arc... ⌘-E

Allows you to change the curvature of an arc. You must select an arc to make this command available.

Note that the name of this command changes depending on the Draw object selected. The keyboard shortcut remains the same.

Edit Round Corners... ⌘-E

Allows you to change the curvature of corners on a rounded rectangle. You must select a rounded rectangle to make this command available.

Note that the name of this command changes depending on the Draw object selected. The keyboard shortcut remains the same.

Edit Arrow... ⌘-E

Allows you to change the direction of your arrow, to add a second arrowhead, and to modify the length and height of the arrowhead(s). You must select a line with arrows to make this command available.

Note that the name of this command changes depending on the Draw object selected. The keyboard shortcut remains the same.

Slide Draw Delay...

Displays a dialog so you can define the draw time between chart elements for a particular Chart window when the slide show is running. You can use the direction arrows or enter a number (in seconds) for the amount of delay time between elements. You can also choose to manually display each elements with a click of the mouse button.

To learn more about	refer to
This command	"Adding 'Draw Delay' to Slide Elements" in Chapter 13

Windows Menu

Use the Windows menu to add, delete, name, and display Chart windows and backgrounds. It is also used to open and create Custom Libraries and slide shows, change the size of a chart on the screen, change the number of pages in the drawing surface, and to transfer you back to the Notebook window.

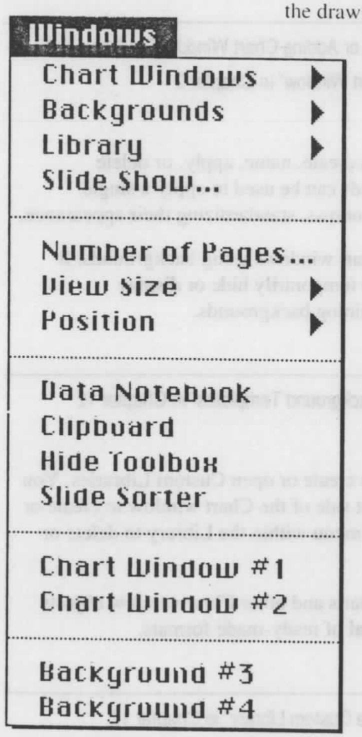
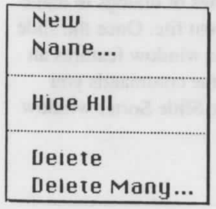


Chart Windows	Displays a hierarchical menu so you can create, name, hide, or delete Chart windows
Backgrounds	Displays a hierarchical menu so you can create, name, apply, display, or delete backgrounds for the Chart window
Library	Displays a hierarchical menu so you can create, open, or close a Custom Library or delete an item from the active Library
Slide Show...	Displays a dialog so you can create a slide show
Number of Pages...	Displays a dialog so you can specify the number of pages in the active Chart window
View Size	Displays a hierarchical menu so you can view the contents of the active Chart window from 25% to 400% of actual size
Position	Displays a hierarchical menu so you can tile, stack, or place windows side by side
Data Notebook	Displays the name of the current page in the Notebook window
Clipboard	Displays the contents of the Clipboard in the Clipboard window
Hide Toolbox	Hides or Shows the Toolbox in the Chart window
Slide Sorter	Brings the Slide Sorter window to the foreground
Chart Window #1 Chart Window #2	Lists all of the Chart windows associated with the current file; select one to activate the corresponding window
Background #3 Background #4	Lists all of the background associated with the current file, select one to activate the corresponding window

Chart Windows



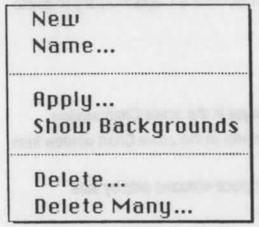
Displays a hierarchical menu so you can create and display an empty new Chart window, name and rename Chart windows, delete the active Chart window or a range of Chart windows, or hide all of the displayed Chart windows. You can have as many as 100 Chart windows in each DELTAGRAPH file, depending on available RAM. When you have exhausted available RAM, this command is unavailable.

DeltaGraph automatically names each new window "Chart #1," "Chart #2," and so forth. You can select "Name..." from this menu to rename any Chart window.

New Chart windows are automatically created when you plot data, unless you specify otherwise.

To learn more about	refer to
This command	"Creating or Adding Chart Windows" in Chapter 6
Chart windows	"The Chart Window" in Chapter 2

Backgrounds



Displays a hierarchical menu so you can create, name, apply, or delete backgrounds for your charts. Backgrounds can be used to apply a single background to any or all of the Chart windows, standardizing their appearance.

"Show Backgrounds" works only on Chart windows using backgrounds. It toggles between "Hide Backgrounds" to temporarily hide or display backgrounds in all Chart windows containing backgrounds.

To learn more about	refer to
This command	"Using Background Templates" in Chapter 12

Library

Displays a hierarchical menu so you can create or open Custom Libraries. You can also use the Library icon on the right side of the Chart window to create or open a Library. You can use the pop-up menu within the Library to delete or rename Library templates.

A Custom Library allows you to save charts and other Chart window objects into a separate window for quick retrieval of ready-made formats.

To learn more about	refer to
This command	"Using the Custom Library" in Chapter 12

Slide Show...

Displays a dialog so you can create, delete, or rename a slide show. When you create a slide show this command takes you through a series of dialogs to name the slide show and choose slides from the open DeltaGraph file. Once the slide show is created the Slide Sorter window is displayed. This window features an abbreviated Menu bar with a special Slide menu that has the commands you need to modify and run a slide show. You can also use the Slide Sorter window icon on the right side of the Chart window to create or open the Slide Sorter window.

To learn more about	refer to
The Slide Show features	Chapter 13, "Creating a Slide Show"
The Slide Show menu bar	"Slide Menu," later in this chapter

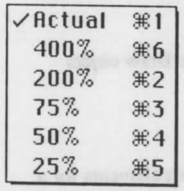
Number of Pages...

Displays a dialog so you can specify the number of pages to include in the active Chart window. The maximum number of pages is 100 (10x10 pages). The default number of pages is one. You can select "Preferences..." from the Edit menu to change the default for all new Chart windows.

If the objects in the Chart window do not fill the specified number of pages, the empty pages will not print.

To learn more about	refer to
Setting default preferences	"Setting Chart Default Preferences" in Chapter 6

View Size



Displays a hierarchical menu so you can change the viewing size of the contents in the active Chart window. Viewing size does not affect the printed page. The default is 100 percent. The available sizes and their keyboard equivalents are displayed on the left.

Position

Displays a hierarchical menu so you can tile, stack, or arrange your open windows side by side.

Tiled Arranges all open windows to fit together like tiles on the screen

Stacked Stacks all open windows, with the most recently opened window on top

Side By Side Places the Notebook window on the left half of the screen, and stacks all open Chart windows on the right

To change the default (stacked), choose "Preferences" from the Edit menu.

Data Notebook

When you select this command from a Chart or Slide Sorter window. DELTAGRAPH displays the Data or Text page on which you were last working. The names of the pages within the Notebook window do not appear in this menu.

Clipboard

This command opens the Clipboard window, which contains the last text or object cut or copied You can move, size, and close this window just as you would any other.

This command changes to "Hide Clipboard" when the Clipboard is open.

Hide/Show Toolbox

Removes the Toolbox from or displays the Toolbox in the Chart window. Toggles between "Hide Toolbox" and "Show Toolbox."

Slide Sorter

If you have opened the Slide Sorter and then returned to the Notebook or Chart Window, the Slide Sorter window is placed in the background. This command brings the Slide Sorter window to the foreground and makes it active. If a Slide sorter window is already open you can also use the Slide Sorter window icon on the right side of the Chart window to bring the window to the foreground.

Chart Windows

Lists of the Chart windows associated with the current file by name. The entries in the menu ("Chart Window #1," "Chart Window #2," etc.) are the default names that DELTAGRAPH assigns to each new Chart window. If you have renamed a window with the "Name..." command from the "Chart Windows" hierarchical menu, the name appears here.

Selecting a name from the list makes that the active window.

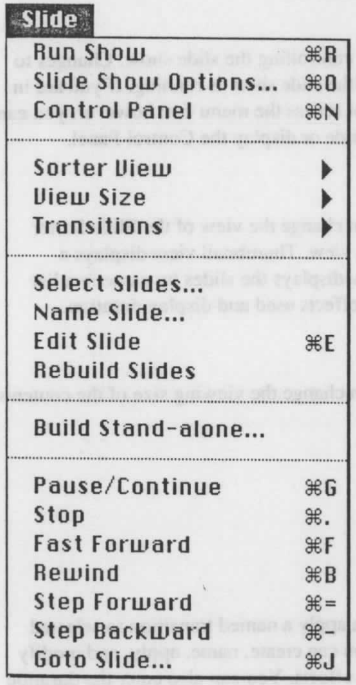
Backgrounds

List of the background windows associated with the current file. The entries in the menu ("Background #3," "Background #4," etc.) are the default names that DELTAGRAPH assigns to each new Background window. If you have renamed a window with the "Name..." command from the "Backgrounds" hierarchical menu, the name appears here.

Selecting a name from the list makes that the active window.

Slide Menu

The Slide menu contains all the commands you need to create and edit a slide show, add and modify special transition effects, then run the show. It is visible only when you are in the Slide Sorter window, which displays a modified menu bar that includes the Apple, File, Edit, Slide, and Windows menus (in that order).



Run Show	⌘R	Plays the created slide show
Slide Show Options...	⌘O	Displays a dialog so you can set preferences for displaying and controlling your Slide Show
Control Panel	⌘N	Displays the Control Panel for running the slide show
Sorter View	▶	Displays a hierarchical menu so you can change the view from Thumbnail view to a List view
View Size	▶	Displays a hierarchical menu so you can view the contents of the slide show from 50% to 200% of actual size
Transitions	▶	Displays a dialog so you can set visual and sound effects for each slide
Select Slides...		Displays a dialog so you can select slides from within the open file to add to the slide show
Name Slide...		Displays a dialog so you can name a slide or the selected slide
Edit Slide	⌘E	Displays the Chart window for the selected slide so you can edit the chart
Rebuild Slides		Updates all of the slides with changes made in the Chart window
Build Stand-alone...		Builds a stand-alone application of the slide show so you can run and/or edit it without DELTAGRAPH
Pause/Continue	⌘G	Pauses and resumes the slide show
Stop	⌘.	Stops the slide show and returns to the Slide Sorter window
Fast Forward	⌘F	Fast Forwards the slide show
Rewind	⌘B	Rewinds the slide show
Step Forward	⌘=	Goes to the next slide
Step Backward	⌘-	Goes to the previous slide
Goto Slide...	⌘J	Displays a dialog so you can skip to any slide within the slide show

To learn more about	refer to
The slide show	Chapter 13, "Creating a Slide Show"

Run Show ⌘-R

Runs the slide show you have created. You can use the "Slide Show Options" dialog to specify whether you want the slides drawn to the size of the Slide Sorter window or to the full size of your screen. You also have the option of using two screens: one displays the slides; the other displays the menu bar and Control Panel.

Slide Show Options...

⌘-O

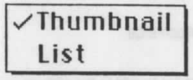
Displays a dialog so you can specify how the slide show is controlled and displayed while it is being played.

Control Panel

⌘-N

Hides or displays the Control Panel for controlling the slide show. Changes to "Hide Controls" or "Show Controls" if the slide show is running. If you are in the "Use Full Screen" mode, you cannot access the menu bar; however, you can use the Command key combination to hide or display the Control Panel.

Sorter View

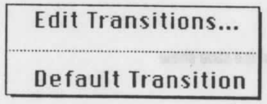


Displays a hierarchical menu so you can change the view of the Slide Sorter window from Thumbnail view to a List view. Thumbnail view displays a reduced view of the slide. The List view displays the slides by name in a list format indicating the type of transition effects used and display duration.

View Size

Displays a hierarchical menu so you can change the viewing size of the contents in the slide show.

Transitions



Displays a hierarchical menu so you can apply a named transition to selected slides or display a dialog from which you can create, name, apply, and modify transitions that include visual and audio effects. You can also enter the duration of time that the slide is displayed and if you want to manually or automatically go to the next slide during your presentation.

You have the option of saving transitions that you create, name them and use them again on any other slide within the file.

Select Slides...

Displays a dialog so you can select Chart window pages to add to your slide show. Click next to the page or pages you want included in your slide show. You can also click the "Select All" button to select all of the Chart window pages listed. If you can't remember what the chart within a particular Chart window looks like, you can display a thumbnail version of it from within the dialog.

Name Slide...

Displays a dialog so you can name each slide in your slide show. This name does not appear in the slide show, it is only used when you are in the List view (use the "Sorter View" command).

Edit Slide ⌘-E

Displays the Chart window of the selected slide and allows you to edit the chart as necessary. You do not have to use this command to edit your Chart window; but if you update your chart without this command, you must use the "Rebuild Slides" command to update your slides. Using "Edit Slide" automatically updates the slide within the slide show.

Rebuild Slides

If you change or revise any charts within the Chart window you must select this command to update all of the slides within the slide show. This command may be handier than "Edit Slide" if you have to modify more than one chart because you can update all of your slides at once.

Build Stand-alone

Creates a stand-alone version of the slide show which allows you to run the slide show without the use of the DELTAGRAPH program. This allows you to create a slide show and send it to a colleague who may not have DELTAGRAPH.

Pause/Continue

⌘-G

Pauses the slide show. This option is only available when the slide show is running. If you are in the "Use Full Screen" mode you cannot access this command through the menu bar; however, you can use the Command key combination or use the Control Panel.

Stop ⌘-.

Stops the slide show. This option is only available when the slide show is running. If you are in the "Use Full Screen" mode you cannot access this command through the menu bar; however, you can use the command key combination or use the control panel.

Fast Forward ⌘-F

Fast forwards the slide show (you must hold the keys down). This option is only available when the slide show is running. If you are in the "Use Full Screen" mode you cannot access this command through the menu bar; however, you can use the command key combination or use the control panel.

Rewind ⌘-B

Rewinds the slide show (you must hold the keys down). This option is only available when the slide show is running. If you are in the "Use Full Screen" mode you cannot access this command through the menu bar; however, you can use the command key combination or use the control panel.

Step Forward ⌘-=

Advances the slide show to the next slide. This option is only available when the slide show is running. If you are in the "Use Full Screen" mode you cannot access this command through the menu bar; however, you can use the command key combination or use the control panel.

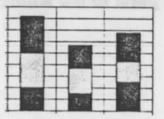
Step Backward ⌘--

Rewinds the slide show to the previously displayed slide. This option is only available when the slide show is running. If you are in the "Use Full Screen" mode you cannot access this command through the menu bar; however, you can use the command key combination or use the control panel.

Goto Slide ⌘-J

Allows you to skip to any slide you select. This option is only available when the slide show is running. If you are in the "Use Full Screen" mode you cannot access this command through the menu bar; however, you can use the command key combination or use the control panel.

Appendix A DELTAGRAPH Chart Types

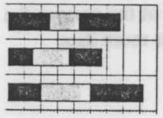


Stacked Column

Use a Stacked Column chart to compare parts to the total, or to show how components of an item change over time.

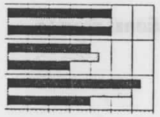
Column

Use a Column chart to compare one item to another, or to compare different items over a period of time. Column charts effectively show large changes from one category to another.



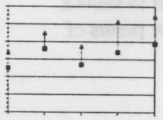
Stacked Bar

Use a Stacked Bar chart to show how all categories in a series compare over time, or to compare parts to the total.



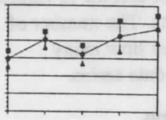
Bar

Use a Bar chart to compare sizes and amounts, or to emphasize differences between items, usually at the same point in time.



High-Low

Use a High-Low chart to show the highs and lows for different items or different periods of time.

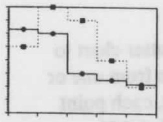


Range

A Range chart shows the highs and lows of an item, as well as the midpoints between the two. You can make these comparisons over time.

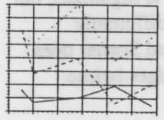
Line

Use a Line chart to show the trend of one or more items over a period of time. Line charts are best for plotting a long series of data points.



Step

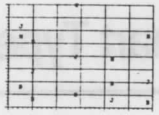
Use a Step chart to compare items that do not show a trend. Step charts display discrete points along the Value axis, with vertical lines showing the difference between each point.



X-Y Line

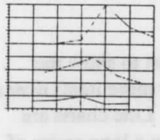
Use an X-Y Line chart to show a comparison of one or more data series, each having the same X coordinate and unique Y coordinates. This chart is similar to the Scatter chart in the way the data is organized, but they are plotted differently because the X-Y Line sorts the X values from left to right before plotting the data.

Scatter



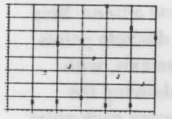
Use a Scatter chart to show data points from one or more data series, each point having the same X coordinate and unique Y coordinates. This chart is similar to the X-Y Line chart in the way the data is organized, but they are plotted differently because the Scatter does not sort the X values plotting the data. The number of rows determines how many points are in a data series.

Paired X-Y Line



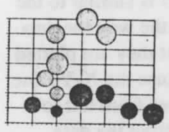
Use a Paired X-Y Line chart to show sorted data points from one or more data series, each having a unique X and Y coordinate. "Paired" refers to how the chart interprets the data that makes up each series of X and Y coordinates.

Paired Scatter



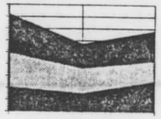
Use a Paired Scatter chart to show data points from one or more data series, each point having unique X and Y coordinates. This chart is similar to the Paired X-Y Line chart in the way the data is organized, but they are plotted differently because the Paired Scatter does not sort the X values before plotting the data.

Bubble



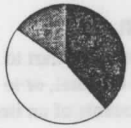
A Bubble chart shows a visual comparison using three coordinates.

Area



Use an Area chart to emphasize the volume or size of a data series, frequently over time.

Pie

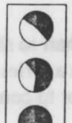


Use a Pie chart to show the relationship of parts to the whole.

Stacked Pie

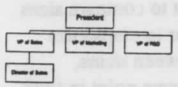
Use a Stacked Pie chart to show the relationship of the parts to the whole for two or more data series.

Multiple Pie



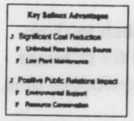
Use a Multiple Pie chart to show the relationship of the parts to the whole for two or more data series.

Organizational



Use an Organizational chart to show hierarchy.

Bullet


Key Sellers Advantages
Significant Cost Reduction
Unlimited Raw Materials Source
Low Plant Maintenance
Positive Public Relations Impact
Environmental Support
Resource Conservation

Use a Bullet chart to show a subject outline for points of discussion.

Contour Fill

Use a Contour Fill chart to show surface variation based on two set evenly spaced values (such as latitude and longitude at 10° intervals) - which can be entered as row and category labels; and a unique number (such as elevation at a given point). The Contour Fill chart is a variation of the Contour Line and 3-D Surface Line/Fill charts.

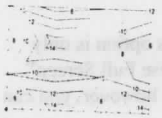
Contour Line

The Contour Line chart is a variation of the Contour Fill and 3-D Surface Line/Fill charts. Contour Line does not have a Value axis; the values are shown as a series of lines and numbers within the chart instead.

XYZ Contour Fill

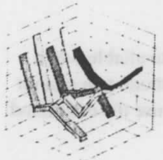
Use an XYZ Contour Fill chart to show variations and relationships over three sets of values: latitude, longitude, and elevation, for example.

XYZ Contour Line



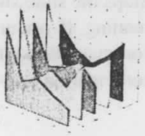
Use an XYZ Contour Line chart to show variations and relationships over three sets of values: latitude, longitude, and elevation, for example.

3-D Ribbon



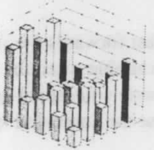
Use a 3-D Ribbon chart to show trends. The 3-D Ribbon chart is a variation of a 2-D Line chart.

3-D Area



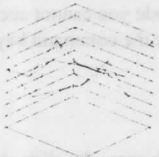
Use an Area chart to emphasiz the volume or size of a data series, frequently over time. Th chart is a variation of a 2-D Lin or Area chart.

3-D Column



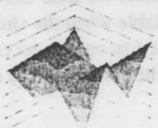
The 3-D Column chart is a variation of a 2-D Column char Use it to compare one item to another, or to compare different items over a period of time. Column charts effectively show large changes from one categor to another.

3-D Wireframe



The 3-D Wireframe chart is a variation of a Contour chart, a 3-D Surface Fill, or a Surface Line chart. A 3-D Wireframe chart connects the various data points with a grid-like "wire frame" of lines. A Wireframe is suitable for showing three-dimensional changes in an object or over time.

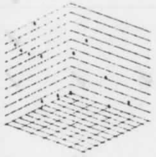
3-D Surface Fill



Use a 3-D Surface Fill chart to show surface variation based on two set evenly spaced values (such as latitude and longitude at 10° intervals) - which can be entered as row and category labels; and a unique number (such as elevation at a given point).

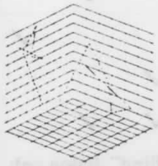
3-D Surface Line

Use a 3-D Surface Line chart to show surface variation based on two set evenly spaced values (such as latitude and longitude at 10° intervals) - which can be entered as row and category labels; and a unique number (such as elevation at a given point).



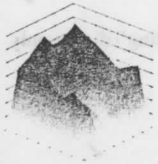
3-D Scatter

The 3-D Scatter chart plots data points created by the intersection of three different coordinate values. Those points are connected to one of the chart planes with a drop line. Each of the three values that make up a point corresponds to a particular axis in a 3-D grid.



3-D Scatterline

The 3-D Scatterline chart is a variation of the 3-D Scatter chart, except that it connects the data points by a line, as in "connect-the-dots." This chart measures something that moves in space as a function of time: a satellite orbiting earth, for example. The chart shows a path of contact points along an implied time line represented by the position of the points along the line.

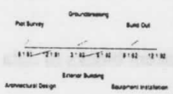


3-D XYZ Surface Fill

Use a 3-D XYZ Surface Fill chart to show three dimensional data where one quantity (plotted on the Z axis) varies depending on X and Y values. XYZ data, not evenly incremented like Surface Line or Fill data.

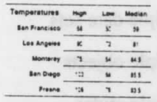
3-D XYZ Surface Line

Use a 3-D XYZ Surface Line chart to show three dimensional data where one quantity (plotted on the Z axis) varies depending on X and Y values. XYZ data, not evenly incremented like Surface Line or Fill data. Each series consists of three columns.



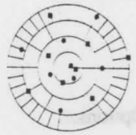
Time Line

Use a Time Line chart to display a project time line or even a product comparison based on a predetermined scale.



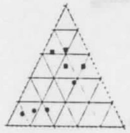
Table

Use a Table chart to show precise data.



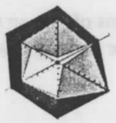
Polar

Use a Polar chart to show cyclical trends. This chart scales time into degrees.



Ternary

Use a Ternary chart to show the percentage of a whole based on three parts of information.



Spider

Use a Spider chart to show multiple variables, such as performance levels, ratings in different areas, or progress.

Appendix B DELTAGRAPH Quick Commands

This appendix is an alphabetical list of all of the DELTAGRAPH Command key (⌘) shortcuts available in DELTAGRAPH, including several special key combinations. The icons below — left to right — represent the Data page, Text page, Chart window, and Slide Sorter window.

If you're not already in the habit of using Command key equivalents, give them a try. You'll be surprised how much time they can save you.

Note: All keys must be pressed simultaneously

Command	Key Combination	▦	☰	▥	⊞
Add word to active user dictionary	⌘–A	In "Spelling" dialog only			
Bold text	⌘–B	✓	✓	✓	
Check word in "spelling" dialog	⌘–C	In "Spelling" dialog only			
Close Window	⌘–W			✓	✓
Constrains object handles to a square when drawing in a Chart window	Shift–Drag			✓	
Constrains object to initial direction of movement when drawing an object or resizing an axis in a Chart window	⌘–Drag			✓	
Control Panel, show/hide	⌘–N				✓
Copy	⌘–C	✓	✓	✓	
Cut	⌘–X	✓	✓	✓	
Delete Column/Row	⌘–K	✓			
Delete word from active user dictionary	⌘–O	In "Spelling" dialog only			

Command	Key Combination	▦	☰	📊	▣
Duplicate	⌘–D			✓	✓
Edit Arc	⌘–E			✓	
Edit Arrow	⌘–E			✓	
Edit Bezier Curve	⌘–E			✓	
Edit Master for the selected slide	⌘–E				✓
Edit Polygon	⌘–E			✓	
Edit Round Corners	⌘–E			✓	
Edit Slide	⌘–E				✓
Fast Forward	⌘–F				✓
Format... data/labels	⌘–F	✓		✓	
Goto Slide	⌘–J				✓
Help...	⌘–/	✓	✓	✓	✓
Insert Column/Row	⌘–J	✓			
Italic text	⌘–I	✓	✓	✓	
Link/Unlink Excel data	⌘–L	✓			
Move left	⌘–L		✓		
Move right	⌘–R		✓		
Name a slide	Option–Click on slide				✓
New	⌘–N	When no file is open			
New Item	⌘–N		✓		
Open...	⌘–O	When no file is open			
Options...	⌘–Y			✓	
Paste	⌘–V	✓	✓	✓	
Pause/Continue slide show	⌘–G				✓
Plain text	⌘–T	✓	✓	✓	

Command	Key Combination	▦	☰	📊	▣
Plot...	⌘–G	✓	✓		
Print...	⌘–P	✓	✓	✓	✓
Quit DELTAGRAPH	⌘–Q	✓	✓	✓	✓
Replace misspelled word	⌘–R	In "Spelling" dialog onl			
Revise Data	⌘–.			✓	
Rewind	⌘–B				✓
Run Show	⌘–R				✓
Save	⌘–S	✓	✓	✓	✓
Select adjacent blocks of data	Shift–Click	✓			
Select All	⌘–A	✓		✓	✓
Select multiple chart elements	⌘–Click			✓	
Select multiple data sets	Shift–Click		✓		
Select multiple objects	Shift–Click			✓	
Select multiple slides	Shift–Click				✓
Select nonadjacent data	⌘–Click		✓		
Set All...	⌘–H	✓	✓	✓	
Skip a word	⌘–S	In "Spelling" dialog onl			
Slide Show Options…	⌘–O				✓
Start spell-checking	⌘–R	✓	✓	✓	✓
Step Backward	⌘–- (hyphen)				✓
Step Forward	⌘–=				✓
Stop slide show	⌘–.				✓
Stop spell-checking	⌘–.	In "Spelling" dialog onl			
Temporarily turns off "Snap to Grid" when drawing or moving objects	Option–Drag			✓	
3-D View...	⌘–R			✓	

Command	Key Combination	▦	☰	▥	▣
Underline text	⌘–U	✓	✓	✓	
Undo	⌘–Z	✓	✓	✓	✓
Update	⌘–=	✓	✓		
Unlink/Link Excel data	⌘–L	✓			
View Actual Size	⌘–1			✓	
View Size 400%	⌘–6			✓	
View Size 200%	⌘–2			✓	
View Size 75%	⌘–3			✓	
View Size 50%	⌘–4			✓	
View Size 25%	⌘–5			✓	
In Chart window dialogs, makes the selected change(s), but does not redraw the chart until you perform the next action.	⌘–Shift–OK			✓	
Displays the axis label/title dialog	Double-click on axis			✓	
Displays a Data page and untitled document, instead of the document "DG Stationery," when creating a new file from within DeltaGraph. Applies only if "DG Stationery" is in the DeltaGraph folder.	Option–New	When no file is open			
Opens a new Data page and untitled document, instead of the document "DG Stationery," when opening DeltaGraph from the Finder. Applies only if "DG Stationery" is in the DeltaGraph folder.	⌘–Open	When DeltaGraph is selected in the finder			
Opens DeltaGraph and displays the "Open" dialog instead of a new Data page and untitled document.	Shift–Open	When no file is open			

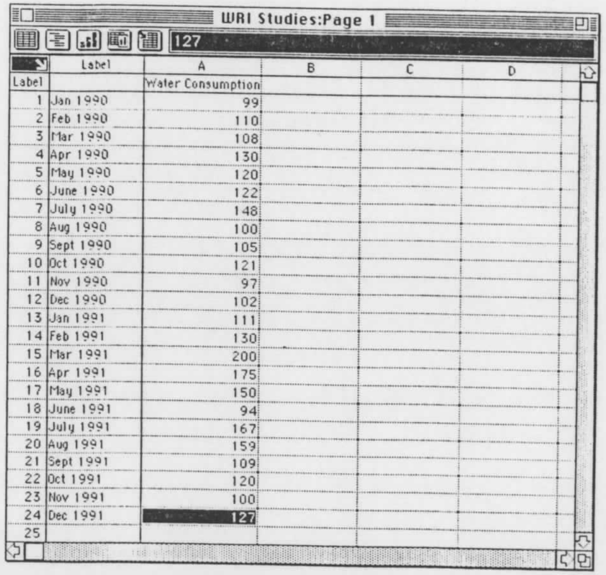
Appendix C

Creating a Histogram

Histograms are used to show frequency or occurrence of data. Data for histograms can be created using the "Formula Builder..." command in the Data menu.

To create a histogram:

1. **Enter your raw data into the Data page as described in Chapter 4 of the User's Guide.**



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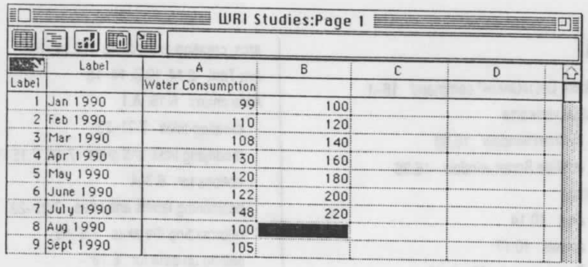
	Label	A	B	C	D
Label		Water Consumption			
1	Jan 1990	99			
2	Feb 1990	110			
3	Mar 1990	108			
4	Apr 1990	130			
5	May 1990	120			
6	June 1990	122			
7	July 1990	148			
8	Aug 1990	100			
9	Sept 1990	105			
10	Oct 1990	121			
11	Nov 1990	97			
12	Dec 1990	102			
13	Jan 1991	111			
14	Feb 1991	130			
15	Mar 1991	200			
16	Apr 1991	175			
17	May 1991	150			
18	June 1991	94			
19	July 1991	167			
20	Aug 1991	159			
21	Sept 1991	109			
22	Oct 1991	120			
23	Nov 1991	100			
24	Dec 1991	127			
25					

2. **Set up your bins in column B.**

   In this case we don't want to plot a histogram reflecting each unique number, so we will set up bins — or ranges that the numbers will fall within. You do not have to set up bins if it is not necessary for your data.

As you can see the lowest number in column A is 99, so we'll start with 100 as the lowest bin and increase by 20. You can enter the bin numbers into column B as shown. Every number from column A that is less than 100 will be counted in the first bin, numbers between 100-119 will fall in the second bin, etc.



	Label	A	B	C	D
Label		Water Consumption			
1	Jan 1990	99	100		
2	Feb 1990	110	120		
3	Mar 1990	108	140		
4	Apr 1990	130	160		
5	May 1990	120	180		
6	June 1990	122	200		
7	July 1990	148	220		
8	Aug 1990	100			
9	Sept 1990	105			

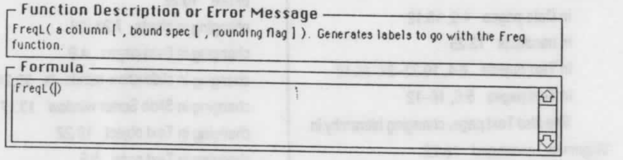
3. **Double-click on column C or select column C and choose "Formula Builder..." from the Data menu.**

   This automatically selects column C as your destination column. The "Formula Builder" dialog is displayed. If you did not specify a bin column, you can use column B as your destination column.

4. **Scroll through the "Functions" window until "FreqL" is displayed.**

5. **Double-click on "FreqL."**

   The formula shell appears in the "Formula" window, with the cursor blinking within the parentheses. An explanation of the function appears directly above the "Formula" window. FreqL (Frequency Labels) provides labels for the calculations that we will perform next.


Function Description or Error Message

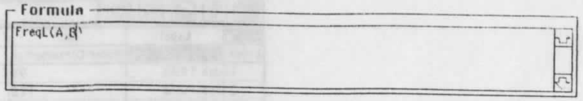
FreqL(a column [, bound spec [, rounding flag]). Generates labels to go with the Freq function.

Formula

FreqL()

6. **You can either type in "A,B" in the parenthesis or double-click on columns A and B from within the "Source Columns" window.**

   The columns must be separated by a comma. If you do not have bins defined, you would enter column A only.


Formula

FreqL(A,B)

7. **Click "Calculate Now."**

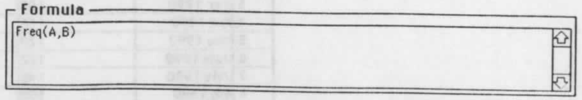
   The calculations appear in column C, the destination column. These are going to be used as labels when we plot the histogram.

8. **Click on "Next Col."**

   This selects column D as the new destination column for our next calculation. "Col D" appears at the bottom of the dialog.

9. **Double-click on "Freq" from within the "Functions" window.**

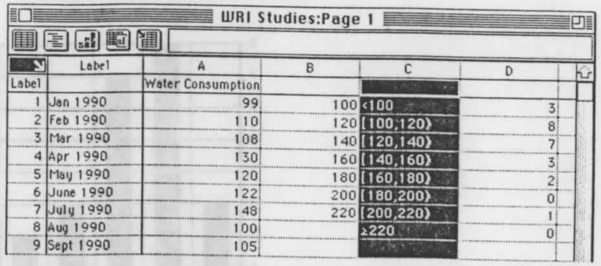
10. **Enter columns A and B as described in step 6.**


Formula

Freq(A,B)

11. **Click on "OK."**

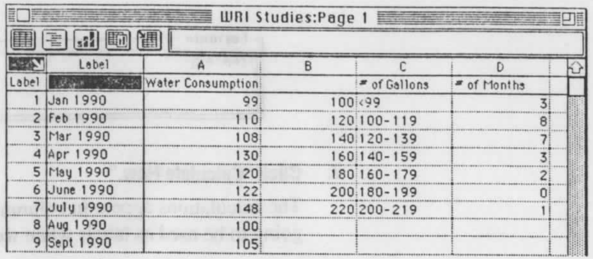
    The frequency of the data in column A, sorted into the bins defined in column B, is displayed in column D.



	Label	A	B	C	D
Label		Water Consumption			
1	Jan 1990	99	100	<100	3
2	Feb 1990	110	120	[100,120)	8
3	Mar 1990	108	140	[120,140)	7
4	Apr 1990	130	160	[140,160)	3
5	May 1990	120	180	[160,180)	2
6	June 1990	122	200	[180,200)	0
7	July 1990	148	220	[200,220)	1
8	Aug 1990	100		≥220	0
9	Sept 1990	105			

12. **Change, enter, or delete labels as necessary.**

    We are going to use columns C and D to create our histogram. You can modify the labels in column C as necessary for your purposes. You can also enter column labels at the top of columns C and D.



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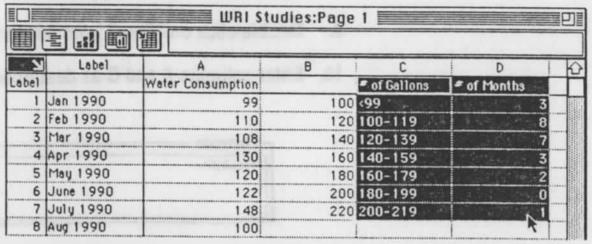
	Label	A	B	C	D
Label		Water Consumption		# of Gallons	# of Months
1	Jan 1990	99	100	<99	3
2	Feb 1990	110	120	100-119	8
3	Mar 1990	108	140	120-139	7
4	Apr 1990	130	160	140-159	3
5	May 1990	120	180	160-179	2
6	June 1990	122	200	180-199	0
7	July 1990	148	220	200-219	1
8	Aug 1990	100			
9	Sept 1990	105			

13. Select the data in columns C and D.



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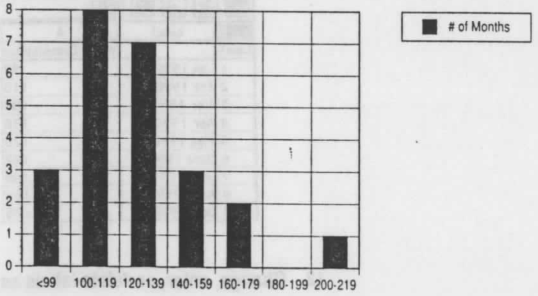
	Label	A	B	C	D
Label		Water Consumption		# of Gallons	# of Months
1	Jan 1990	99	100	<99	3
2	Feb 1990	110	120	100-119	8
3	Mar 1990	108	140	120-139	7
4	Apr 1990	130	160	140-159	3
5	May 1990	120	180	160-179	2
6	June 1990	122	200	180-199	0
7	July 1990	148	220	200-219	1
8	Aug 1990	100			

14. Click on the Plot icon at the top of the Notebook window, select a chart from the dialog and click "OK."

The chart is displayed. It can be modified using the same options available to all other DeltaGraph charts.



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